

GUIDE FOR RECREATION HAND CRAFTS

By
A. PICAREFF



ARTIST AT HIS OFFICE

An exposition of simplified and practical methods in the ART OF PAINTING, BLOCK PRINTING AND SCREEN PRINTING on textiles, PYROGRAPHY AND WOOD PRINTING, SOFT COPPER WORK, and the old art of MAKING AND MANIPULATING MARIONETTES. Effectively and helpfully illustrated by a wealth of interesting designs and pictures showing articles that have been made and finished as a result of the mastery of these crafts. For use at home, in the schools, and in all the playground and recreation centers where children and grown-ups alike find joy and interest in the

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Guide for recreation
hand crafts

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GUIDE FOR RECREATION HAND CRAFTS

By

A P I C A R E F F

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PREFACE

In the course of my teaching activities during the last six years, I have found that the desire for some form of art expression is prevalent in a great majority of people, young and old. My work has taken me to various playgrounds and recreation centers throughout the country, where the interest in textile painting, block and screen printing on textiles, wood burning and painting, copper work, and marionette making, is quite intense.

These crafts, though they may seem complicated in their processes, can, nevertheless, be within easy reach of all who are desirous of learning them; and it is my aim in this book to present a series of instructions which will be simple and easy to follow. No background is necessary either in the crafts themselves or in the arts that govern them, and very gratifying results can be expected simply by following the instructions I am introducing here.

Many years of study and much teaching experience were required to arrive at the easily mastered techniques which are set forth in this book. And it is the writer's hope that it will be of benefit not only to the recreational director, but also to the individual, who has a hankering after these crafts.

The majority of books on the subject of hand crafts are really too complicated and too scientifically written to enable the layman to derive much benefit or pleasure from them.

For this reason too, the busy playground director or art instructor finds it impossible to delve into them. He is asked to teach many crafts, but hasn't the time that is needed for a thorough study of the subjects and therefore cannot acquire a complete knowledge of them. However, with the explanation of these very simple methods, he can readily learn to master them all, can enjoy them himself, and in turn help others in the making of things that will not only be a source of pleasure, but will be marketable as well.

For beautiful things are a joy not only to those who make them, but also to those who are fortunate enough to acquire them.

PREFACE

May this book, therefore, help to further the knowledge and mastery of all hand crafts in this country, and therefore be a source of joy and pride to all.

I wish to express my deep appreciation to Mr. V. K. Brown, superintendent of the playground department, Chicago South Park System, for the opportunity given to me to do my research work on the playgrounds and to study the needs of their art work.

To Mr. Charles W. Bidwell for his aid in enabling me to do the above mentioned research work.

To Mrs. Ella P. Brezo, Mrs. L. Hagener and Mr. M. N. Pestrovo for their valuable assistance in executing samples for use in the teaching of these crafts.

To Mr. James V. Mulholland, Director of the Recreation Department of the New York City Park System, for the opportunity to present and use my new and improved methods in connection with these crafts.

To Mr. C. L. Glenn, Director of the Recreation and Playground Department of the Board of Education of the City of Los Angeles for his kind cooperation in introducing my improved methods.

CHAPTER ONE

PAINTING ON TEXTILES

(Respectfully dedicated to Mr. V. K. Brown)



ILLUSTRATION OF AN EXAMPLE OF A
HAND-PAINTED SUIT OF CHINESE
PAJAMAS.

TEXTILE PAINTING FOR USE IN THE

MAKING of: dresses, shawls, scarfs, draperies, blouses, piano covers, wall hangings, bedspreads, pillows, curtains, lamp shades, handkerchiefs, textile masks, stage costumes, etc., etc. The following illustrations show finished articles,—some of them made by my students,—on which textile painting was used. They will give an idea as to how this craft can be employed in the making of a number of very beautiful and useful things and show the many interesting possibilities that are open to the creative mind in this field.

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PHOTOGRAPH OF A CLASS OF SEVENTY-FIVE WOMEN
Who attended School in the Hamilton Park field house under the tutelage of
A. Picareff, in Chicago, Ill.

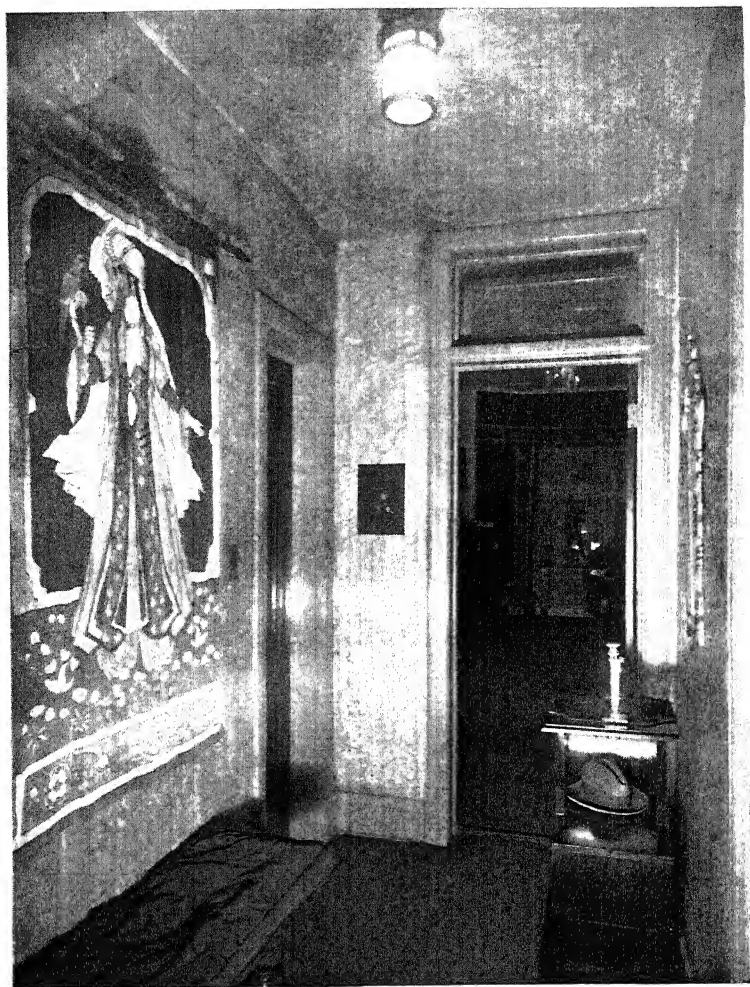
THIS ILLUSTRATION SHOWS: (1) A frame with the material stretched onto it, ready for painting. (2) The proper way of holding the brush while working, (perpendicular to the material to be painted). (3) The correct way of holding the frame so that nothing will be in contact with the material on the frame from below.

PAINTING ON TEXTILES



PHOTOGRAPH OF A CORNER OF A. PICAREFF'S STUDIO, SHOWING
EXAMPLES OF HAND-PAINTED WALL HANGINGS, BEDSPREAD,
AND PILLOWS.

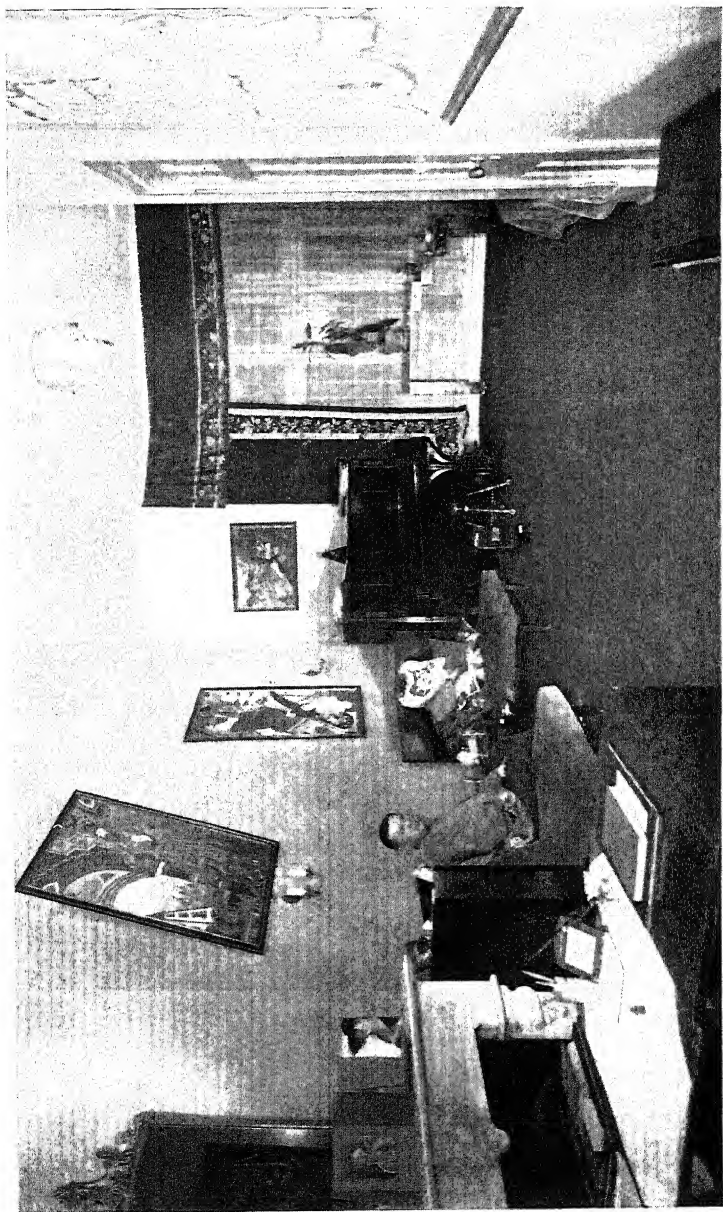
PAINING ON TEXTILES



ENTRANCE TO THE A. PICAREFF STUDIO.

The Persian wall hanging, hand painted on silk, produces a beautiful effect with its oriental coloring. This wall hanging is lined with satinette.

PAINTING ON TEXTILES



THE AUTHOR'S OWN STUDIO.

All wall panels, pillows, and draperies are hand-painted on various textiles.

PAINTING ON TEXTILES

There are numerous methods of painting on textiles, and of course many different media used in connection with each of these methods. I shall give a short description of each method, giving information about the proper materials to be used in connection with it. Some of the methods of textile painting require the use of oil colors; but there are more methods that require the use of aniline dyes or coal-tar dyes in liquid form, or the use of wax, rubber cement, crayons, etc. Very often an amateur has great difficulty in preparing these dyes so that they will work properly. On the other hand, lots of materials sold as ready for use do not carry proper information as to how to use them and leave the worker stranded and bewildered, very often discouraging him in his attempt to make the desired articles. Therefore, the worker should be very careful to select the proper materials with which to work.

GENERAL INFORMATION

In textile painting two different coloring agents are employed. First, water color dyes or oil colors of different shades with which to cover up the spaces of the pattern to be painted;

Second, a coloring or colorless agent of special chemical consistency with which to prevent the running of one color into another. For this purpose colored or colorless wax or rubber cement could be used; but in view of the fact that these materials are inflammable, and some of the recreation centers, as a rule, forbid the use of inflammable materials on their premises, I recommend the use of non-inflammable paint stopper which can be purchased colorless or in any shade ready to be used, or could easily be mixed to produce the desired shade. For, in outlining features of the face, miniature details of the pattern, or ornamental work, only the paint stopper in different shades or the textile crayons should be used. For those who like to try and prepare the colors themselves, or for those who find it impossible to purchase the materials ready for use, I shall give the easiest formulas for the preparation of liquid dyes to be made from powder dyes, as well as the formula for the resisting agent.

PREPARATION OF A LIQUID DYE

Dissolve slowly, spoon by spoon, four teaspoonfuls of a powder dye in a cup of boiling water. Then pour the solution into a quart of boiling water, mix thoroughly, and keep the solution simmering on a slow fire for about twenty minutes. If the dye

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shows a tendency to boil over, leave a spoon in it or stir it and continue to stir it for the above mentioned period of time. Take it from the fire and cool it off. If the dye is an acid dye, add twenty drops of acetic acid when it is cooled off. If the dye is a basic dye, add a teaspoonful of solution of tannic acid. Sometimes the dye leaves a sediment. In that case, the dye solution should be strained through a cloth.

Very good results will be had if the above instructions are followed strictly.

PREPARATION OF WAX

The safest way to prepare the wax is to prepare it in a double boiler. Take one half pound of pure bee's wax and one quarter pound of parafin and melt it in the top of a quart-sized double boiler. When it becomes a liquid, it is ready for use and should be used while still hot as an outliner. If properly applied, this will prevent the colors from running into each other.

PREPARATION OF COLORED WAX

Take the same quantity: one half pound of bee's wax and one quarter pound of parafin and melt it in the top of a quart-sized double boiler. When the wax becomes liquid, add to this quantity one teaspoonful of oil soluble dye or a basic dye of the desired shade in powder form and stir it well. It will produce quite a concentrated solution.

The stiffness of the wax outliner can be removed from the material by pressing it with a hot iron between two pieces of tissue paper or by placing it in a gasoline bath. The color line will not be effected by this process, and will remain in the material. COLORED OR COLORLESS WAX OUTLINER is handy to use when painting is to be done on VELVET, SATIN, OR MUSLIN because hot wax solution applied with a Japanese brush for wax easily penetrates through these materials and forms a solid line, thus preventing the colors from running into each other. Colored hot wax solution as well as colorless is used in so called batik work, but in a different manner. Batik work is a very slow process, very tedious and sometimes dangerous because of the quantity of hot wax and gasoline employed. Both of these materials are inflammable, and as I mentioned before, are very often forbidden on the recreation premises. Therefore, I am not explaining this method of work; but if one is interested in it, a number of printed

instructions on this particular subject can easily be obtained at any of the public libraries

PREPARATION OF A RUBBER CEMENT OUTLINING AGENT

Dissolve in benzine one part of bee's wax. Then add one teaspoonful of liquid oil dye of the desired shade and mix the resulting solution with three parts of rubber cement glue. Heat it in a double boiler, stirring it constantly; and when thoroughly mixed, strain it through cheese cloth and apply it to the material with a medicine dropper.

PREPARATION OF A SILVER AND GOLD RUBBER CEMENT OUTLINING AGENT

Dissolve one part of bee's wax in benzine. Mix it with three parts of rubber cement glue, thus preparing one solution. Then dissolve gold or silver powder in banana oil, thus preparing the second solution. Then mix these two solutions together and heat it from five to ten minutes in a double boiler, stirring constantly. When mixed, apply it to the material with a medicine dropper.

Wax and rubber cement outlining agents are mostly used in connection with commercial work where speed is required and not so much attention is given to the artistic results of the work. But the application of this outlining agent is connected with the use of special tools or a medicine dropper, and a certain amount of training in the handling of these tools is required in order to produce the desired clean cut lines and to avoid smearing them.

The average worker in recreation centers or on the playground usually has difficulties in handling these tools, and unless very careful, will produce smeary, awkward lines.

Therefore, I cannot recommend the use of the above mentioned outlining agents as the best materials for general application in recreation centers where simplicity in method and the low cost of materials are the first requirements in craft work. And so I shall proceed to describe the proper way to paint on textiles.

SIMPLE AND ESSENTIAL INSTRUCTIONS IN THE METHOD OF PAINTING ON TEXTILES

Materials to use

- (1) A wooden stretcher frame for artist's canvas (curtain stretcher.)
- (2) One piece of silk of desired size (a piece of silk because the best results are obtained on silk).

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- (3) Plain white metal, strong, ordinary thumb tacks.
- (4) One brush, No. 0; if possible, several brushes for the application of the outlining agent. One brush, size No. 8 or 9, for filling in the dye into the outlined spaces.
- (5) A bottle of Paint Stopper of the desired shade, to use as a coloring agent, preventing the dyes from running into each other.
- (6) A set of dyes: for this purpose a number of dyes can be used and can be purchased ready made, as Kraftrite Colors, Silko Paint, Fabricolors, Textile Dyes or Colortex Dyes.
- (7) A piece of white blotting paper for the purpose of removing the excess dye.
- (8) Perforated Paper Pattern for the purpose of marking the design on textiles. This may or may not be used in accordance with the need or desire of the worker.

GENERAL RULES

- (1) Materials to be used must be absolutely free from any foreign substances. In many cases, silk is loaded or weighted. Therefore, the worker should wash the silk first and remove all the foreign substances.
In order to find out if the silk is loaded or weighted, the worker, when purchasing the silk, should test a small piece of it by putting a drop of water on it. If the water spreads and spreads quickly, the material is pure and proper to use. If the water does not spread, it is an indication of the fact that the material is loaded or weighted.
- (2) Materials to be painted must be stretched as tightly as possible on the frame with thumb tacks spaced about an inch and a half apart.
- (3) The frame should be larger on the outside dimensions than the pattern and goods require. For example, if the design is intended to provide for a ten inch square handkerchief, one inch should be allowed on each side for the paper pattern, and another inch for tacking the margin, thus making, in total, twelve inches square. Therefore, the frame should be thirteen inches square on the outside dimensions. In this way, the pattern will not lap over the wood frame,—a precaution which it is very important to take,—as the color has a tendency to spread and may touch the wood; leaving spots on the material when dried.

- (4) If a perforated pattern is used, it can be thumb-tacked to lie flat on the material, and transfer-powder dusted onto it and patted through the perforations with a plain powder-puff. In case the pattern is transferred onto the material with a pencil, caution should be taken to make the pencil lines light and to avoid the need for corrections, as pencil lines remain in the goods and are noticeable where the pattern calls for light colors, thus spoiling the effect of the finished work. Where dark outlines are planned, the pattern may even be transferred by carbon paper and pencil tracing. In case it is desired to transfer the pattern onto the material when the material is already stretched on the frame, the worker should support the pattern from beneath or fit the frame over a board smaller than the frame itself, so that the material will rest on the board for support during the tracing operation. When the pattern is transferred onto the material and the material is stretched on the frame, as is shown in the previous illustration, the student is ready to begin to work, holding the frame in any convenient position, and taking care that nothing touches the material from below.

The contact of any foreign body with the material while it is being painted will cause a blurring of the lines.

The outlining has to be done with paint stopper of the desired shade, which may be in colors contrasting to or harmonious with the shade it is to set off, or it may be the same identical shade.

The line itself should be one-sixteenth of an inch wide, and not narrower, as it is possible for the dye to break through a line which is too narrow to provide an effective barrier.

Outlining is very effective, if done with steady and narrow lines. But surprisingly good results are obtained even though the outlining before the dyes are used appears hopelessly crude.

Paint Stopper saturates the material but does not spread. Having a quick drying nature, it evaporates, and therefore, should not be left open when not in use. If the bottle is left open for a long time, paint stopper may become too thick for easy use and will not penetrate the material. In that case, Paint Stopper can be thinned with a FEW drops of the same color dye. Under no circumstances should the student use water to thin the paint stopper. If the paint stopper collects on the brush,—coating it,

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—the brush can be washed out with water but must be dried before the paint stopper can be used again. The student must see that the paint stopper line penetrates through the material and makes a solid line showing through on the reverse side of the fabric.

If, on close inspection, the reverse side of the material shows any white threads running across the line, the lines are not sufficiently made proof against the spread of the dye.

In that case, the line should be paint stoppered again on the reverse side wherever this condition appears. Paint stopper lines must join perfectly and completely enclose the space they are to set off for an individual color. Otherwise, the dye will break through and mar the finished work. It requires very little practice to become a master of line; but in the beginning, special care should be taken in going over the work on both sides of the goods when outlining is done. It is very effective in the beginning to use combinations of stoppers in two or three different harmonious colors, one line traced immediately against the other, leaving no white goods showing between, but doubling or tripling the outline.

I especially recommend this in cases where a student's tendency is to make too narrow a stopper line. In applying the stopper, the brush should be held as nearly perpendicular as possible.

Straight lines are quite difficult, and their imperfections are plainly noticeable. Therefore, I recommend starting with a pattern which calls for irregular lines.

By beginning with a small piece or two, however, the student will soon learn for himself the required technique. Gray color stopper, or yellow, or gold, or a combination of gray and ruby and gold, or ruby and gray are the most effective to use.

When paint stopper lines have dried thoroughly, the color itself is applied by brush into the space set off by the stopper outline. To apply the color is very easy, but a few things must be observed.

THE APPLICATION OF A DYE

It is very important to have enough color on hand to cover the space required, especially if other colors are used direct from

the bottle; that is, if shades diluted by adding water or mixtures of colors are employed. Stopping to mix up more colors may result in drying the edges of the space already painted; and then there is a danger that the line of that dry edge will show in the finished product. If the dyeing is done properly, the color will be absolutely even. If the material is pure and free from foreign substances, colors spread quickly over such materials, running to the stopper line and stopping there. Flooding of the material with too much dye is dangerous, as it tends to soak through and break down the stopper line.

The student should use white blotting paper to take off the excess color or to check a break through the stopper line.

COVERING LARGE BACKGROUNDS

Special care should be taken in covering backgrounds or other large spaces around a center design. A large brush is recommended for this purpose. The edges of the colored area must not be permitted to dry. Therefore, the student, putting the dye around the center design, must work alternately both ways, instead of starting at one corner and working around the pattern in a single direction, LEAVING THE EDGE WHERE HE BEGAN TO BE JOINED UP AT THE END OF THE CIRCUIT. It will have dried in the meantime, and his work may be marred in consequence of a visible junction line.

THE STUDENT SHOULD START PUTTING THE DYE AT THE CORNER, PROCEED ACROSS THE TOP WITHIN A DIRECT, STRAIGHT LINE WITH A FEW BRUSHFULS, AND THEN GO BACK TO THE STARTING POINT, CONTINUING ACROSS, APPLYING THE DYE ON THE ALREADY COLORED AREA JUST ABOVE THE SPREADING MARGIN WHERE THE COLOR IS TRAVELING OVER ONTO THE WHITE MATERIAL: in other words, always overlapping previous strokes. If this simple rule is observed, the student need never fear any irregular dyeing. The colors will be as even and unspotted throughout the goods as in a manufactured fabric. The student should always remember to allow the color to spread. It should not be used immediately against the stopper line, but rather a half inch or more away, permitting the color to spread to the stopper line.

Otherwise, it piles up against the stopper line and threatens

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to break across it. In places where it piles up, it leaves a heavy color edge against the stopper line when dry and in consequence makes for a less clear-cut coloring.

DETERMINING THE SHADE

It must be born in mind that tints are of a darker shade when wet and freshly applied. It is best, therefore, to have at hand a small piece of the same sort of material for sampling the colors before they are applied. By holding the sample to the light, the student can judge the finished color as it will appear when dry; for the darker shading of the wet dye disappears when held to the light, and the true tints may be judged with reasonable exactness by this means. Where absolute accuracy is essential, it is best to wait until the sample is dry.

PECULIARITY OF SOME DYES

After the dye has once dried, it is unwise to attempt patching. One should be particularly cautious in the use of black dyes, which may have a brownish tone after drying and will be all right when washed, but will show patching if re-dyed after drying. However, since the material absorbs the dye evenly, even though the brush work can never positively deposit the same amount of colors on every thread of fabric, the student need not be unduly alarmed if, after his work has dried, he sees places where the tint appears lighter or heavier than its surrounding color. If the material is pure and free from foreign substances, and the rules of painting have been observed, steaming and washing will, as a rule, make these inequalities disappear as if by magic, and the worker will find the goods very evenly tinted.

THE EFFECT OF WASHING ON PAINTED TEXTILES

It must be remembered that, due to the fact that material absorbs more of a dye than it requires, steaming and washing will eliminate the excess dye, and the material will usually be somewhat lighter in shade after the steaming and washing process.

The student must bear this in mind, preparing his colors one shade darker than the colors desired for the design.

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CONDITIONS THAT MAY COME ABOUT IN THE USE OF DYES

If the bottle with the dye is allowed to remain open for a time, or is not purchased out of fresh stock, it usually shows a sediment at the bottom. The dye should be strained before using.

If the paint stopper shows a tendency to spread, or appears to have too little body to act as an effective barrier, it may either be poured into an open dish and allowed to evaporate for a time until it condenses to the required thickness, or it may be heated over a gas flame to thicken the consistency. After the fabric has been dyed and removed from the frame, it will be found somewhat stiffened by the stopper lines and dye deposit—a condition which, after treatment, is completely eradicated, leaving it ultimately as soft and as pliable as it was before work was begun on it. This after-treatment has been referred to as the steaming and washing process.

CAUTION ABOUT PAINTING ON READY-MADE ARTICLES

One should never attempt painting on ready-made articles, especially those of wearing apparel. It is dangerous, and the work is not so sure of being satisfactory. The following description will explain cases when one may paint on ready-made articles, and how to do it.

STEAMING PROCESS

Steaming is a necessary process to set the dyes, and brings out a proper lustre of the fabrics. Preparing the goods for steaming must be carefully done.

Lay a sheet of heavy pleating paper large enough to leave a margin outside the largest piece to be treated, on a table or counter. Over this, two sheets of white wrapping paper—free from all coloring matter—are laid. Then the material is carefully spread to avoid wrinkling, folding, or overlapping.

On top of this, three layers of white wrapping paper are spread, and the process of spreading one layer of material over three sheets of white wrapping paper is continued until all the material to be steamed is taken care of.

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AS MANY AS TWENTY LAYERS CAN BE PREPARED AND SUCCESSFULLY STEAMED IN THIS WAY.

When all have been assembled, lay three white paper sheets on top of the last layer of material.

To permit the heat to penetrate evenly to the center of the bundle, use a two inch diameter hollow mailing tube as a roller. The whole is then carefully rolled into a cylinder around this tube with strict attention to avoiding the wrinkling of any pieces of goods which might make the material double over against itself or overlap another piece. Should this happen, the dye from one piece may, in steaming, communicate its colors to the other piece in contact with it. When the whole has been rolled tightly, it is securely tied into a cylindrical bundle with stout cord at several places along the bundle's length. The goods used is very rarely over forty inches wide, and with ample margin of overlapping paper at the edge, the bundle is not unduly long when rolled. It must now be wrapped in heavy wrapping paper and pieces of heavy wrapping paper in two or three thicknesses are securely tied over both ends of the bundle, and the package is ready for the steaming chamber. Several upright steam chests are on the market such as are used in pleating establishments, which serve the steaming purpose. To set the colors, the temperature inside the cabinet must be brought up to two hundred degrees Fahrenheit, and maintained at that level for three consecutive hours. If, for any reason, the door to the cabinet must be open during the steaming process, or the temperature of the cabinet drops below two hundred degrees, the time during this lowered temperature does not count even if the bundle remained in the cabinet, and the time for steaming is reckoned only for the duration of the two hundred degrees temperature.

Three hours, however, constitutes a sufficient time to accomplish the purpose, and the goods should not be steamed longer than that period. The best cabinets to use are those operated by a gas burner.

The package, of course, must not come into contact with the water, either at the bottom of the cabinet above the burner, or the sides of the cabinet; and to maintain an even temperature, the door of the cabinet must be reasonably tight, fitted and secure to prevent leakage of steam.

THE WASHING PROCESS

The first washing must be thoroughly and carefully done. Excess colors and stiffness of the stopper or other resisting agents must be removed. The goods must not be allowed to stand in water, folded against itself, for this excess color will run through the entire piece. It should be hand washed in lukewarm water, holding the piece under water and moving it in a rinsing movement. Hold goods unfolded and in single thickness, to prevent darker colors from soaking off onto the lighter places of the pattern, a result which is bound to take place if a folded piece of fabric is left lying in water for a time with all the excess dye still on it. With that excess dye thoroughly washed out, there is not this danger, of course, but it must be guarded against in the initial washing. A mild soap may be used in this initial washing, but is not needed.

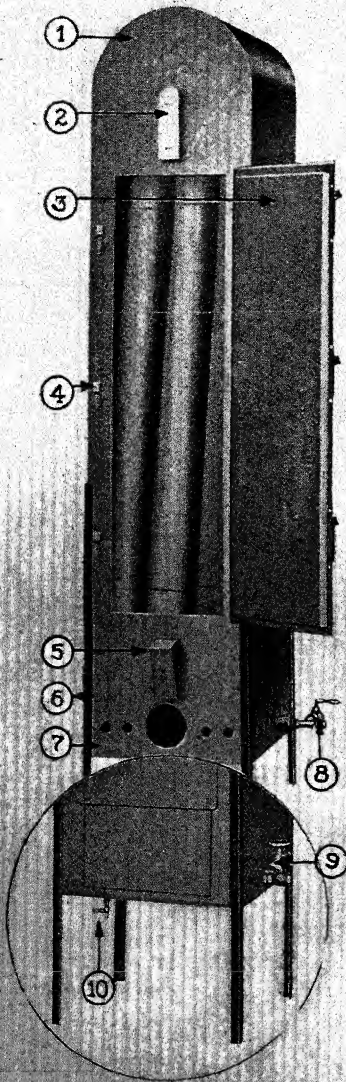
Light rubbing by hand, with repeated changes of water, until all the excess dye is removed and the water is no longer stained, will remove not the dye itself, alone, but also the body material of the resisting agent, and leave the material now colored, as free from foreign mineral matter as when it was untinted.

NEVER SQUEEZE THE GOODS IN WATER UNTIL THE EXCESS DYE IS GONE AND THE WATER REMAINS CLEAR. Having washed it in five or six changes of water until it no longer colors the water in which it is rinsed, the material is ready to be dried. It should be dried between two sheets of white cotton goods and wrung out by hand, making sure that it is not wrung out by squeezing or twisting against itself, with no intermediate goods between each two layers of painted material. Some excess color likely is to remain in the material for some time, and while the color in the goods will not wash out, this excess dye will possibly stain the goods with which it comes into forced contact in wringing. So, whenever the goods are washed, they should be wrung out between other white cloths, at least until repeated washings prove that all the excess dye has been washed away. After this wringing process, the damp material is pressed with a moderately hot iron to smooth it and restore its lustre, especially silk, where the sheen of the silk adds a great deal to the richness of the colors.

It is not necessary for one to have a steam box of his own, as the company supplying the dyes, will steam and wash the finished articles at very reasonable prices, and have their steaming establishments throughout the country.

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PICTURE OF THE STEAM BOX WITH THE DESCRIPTION OF ITS PARTS



1. A rail on the inside of the top of the steam box to prevent the bundle from contacting the sides of the steam box.
2. A thermometer.
3. Filled padding to make the door fit tight.
4. A double lock for the door.
5. Wooden cross bars to support the roll.
6. The bottom of the steam chest, which is filled with water up to one inch below the wooden cross bars.
7. The place for a gas burner.
8. The gas pipes attachment.

STEAM CHEST WITH TWO ROLLS INSIDE

A WORK EXAMPLE

Now let us go back a little and summarize or analyze our study, and repeat in our minds what we have learned from the previous articles about painting on textiles.

The following illustration carries a little design with irregular outlines, and presents no difficulty for the beginner. The color scheme is supplied by a system of figures, designating the place of proper color. As I mentioned before, the best work is done on silk, such as flat crepe, chiffon, crepe de chine, georgette, satin-back crepe, canton crepe, pongees, etc. Let us take pongee, which is the cheapest silk, and is usually sold loaded. Therefore, we cut the required size of pongee and wash it out, thus removing the loading and all foreign substances. Our design is seven by nine inches; and, allowing one inch for the pattern, and one inch extra for the thumb-tack margin, our material, therefore, comes to the size of 9 x 11. We trace the design onto the material with a pencil by laying the material over the design, bearing in mind that the frame should be one inch larger on the outside dimensions than the material to be painted on. The size of the frame will therefore be 10 x 12.

We stretch the material tightly onto the frame, tacking it with plain strong white metal thumb-tacks, spaced one inch apart. The design calls for yellow paint stopper, which is applied with a little sable brush, No. 0; and, holding the brush perpendicularly to the frame, we start to cover all the lines of the design with paint stopper, bearing in mind to put our best efforts towards making the lines even and as narrow as possible: not wider than one-sixteenth of an inch. Now we have outlined this design.

Let us turn the frame on the other side for a close inspection and see if the material shows any white threads running across the line; and, if it does, this is an indication that the paint stopper did not penetrate through properly.

We must, therefore, correct the condition by paint stoppering the lines over again on the reverse side.

Having corrected these lines, we are now sure that our outlines are sufficient barrier against the spread of the dye. Let us leave the frame for a few minutes to dry, and, in the meantime, prepare the necessary shades of dye required for this design.

The outlining is dry and having prepared enough dye for this design according to the color chart supplied with it, we are ready to fill the dye into the spaces designated by the numbers. We

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ILLUSTRATION OF THE DESIGN FOR THE FIRST EXAMPLE
OF THE WORK.

- | | |
|-----------------------------------|---|
| 1. Brown | 8 Green No. 2 |
| 2. Sky-Blue (diluted Blue) | 9. Dark Green (mixture of Green No. 1 and few drops of Black) |
| 3. Blue | 10. Olive-Green (mixture of Green No. 2 and Tan) |
| 4. Dark Blue | 11. Diluted Olive Green |
| 5. Sea-Green (diluted Green No.1) | 12. Jet Black |
| 6. Orange | |
| 7. Yellow | |

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begin with the lighter shade, yellow, and, taking a brush No. 8, previously washed to make sure that it is clean, and holding it perpendicularly to the material, we start to put the dye in, having in mind not to come close to the paint stopper line, and letting the dye flow naturally and spread to the paint stopper line

First, we fill up all the spaces that require the yellow dye. Then we wash the brush thoroughly in water and start to apply another color in all the spaces required for it, and so forth and so on, until we fill in all the colors that are necessary to paint this design. Now we come to making the background. The background is a ruby-red color. Taking a bottle of that color and making sure that the brush is absolutely clean, we start to put the dye at the corner and proceed across the top within a direct straight line with a few brushfuls; and then go back to the starting point, continuing across, applying the dye on the already colored area just above the spread margin where the color is traveling over onto the white material: in other words, overlapping the previous stroke. When we finish this background, the material, left to dry for half an hour, will be ready to be taken off the frame and put through the steaming and washing process, and to be used as a little handkerchief, or a pillow top, or an ornamental design to be attached to a dress, or whatever convenient use it may have in the opinion of the worker

SHADING EFFECT

Desirable tints may be blended together without applying Paint Stopper in between, thus producing shading effect. The method of producing shading effect is very simple and requires only patience and careful attention while executing it. Colors to be blended are to be prepared before painting. The scheme of the color combinations must be worked out before the student starts to apply the desirable shades onto the material, as it is unwise to prepare the necessary tints while painting. Separate brushes must be used for each tint; and now, when all the desirable tints are prepared, the student can apply them to the material, one after another, **WHILE THEY ARE WET**. For perfect blending, the student should brush lightly with a clean, damp brush on the adjoining line. The following illustration shows the application of shading effect in two and three color combinations, and, with experience, the student will develop technical skill in producing shading effects in a very short time. Let us refer now to the illustration.

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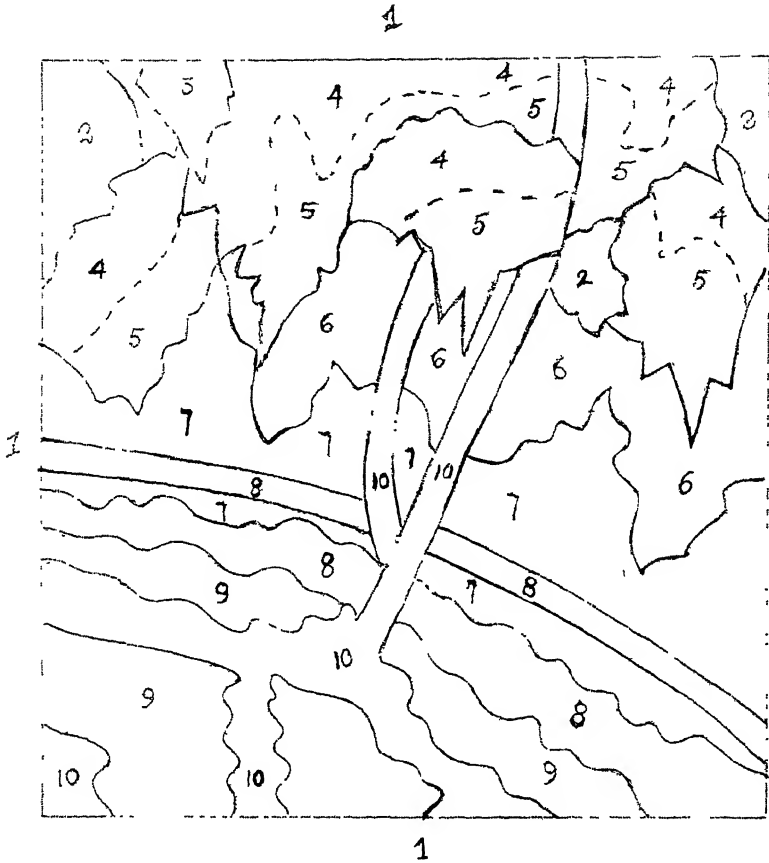


ILLUSTRATION OF DESIGN FOR SHADING EFFECT
PAINT STOPPER RECOMMENDED. Green No. 1, Blue or Gold.

- | | |
|---|------------------------------------|
| 1. Olive Green (mixture of Green No. 2 and Tan) | 6. Sky-Blue (diluted Blue) |
| 2. Orange | 7. Sea-Green (diluted Green No. 1) |
| 3. Diluted Blue | 8. Yellow |
| 4. Diluted Violamine | 9. Salmon (diluted Orange) |
| 5. Very much diluted Violamine | 10. Jet Black |

NOTE: Dash lines indicate shading effect and must be made by placing colors one after the other while they are still wet. No paint stopper to be used on the dash lines.

This illustration is a combination of the plain method of painting on textile and shading. Suppose that we are working on the same kind of pongee material that we have been working on in executing the sample of the previous illustration.

First, we wash the pongee, trace the design, stretch it tightly on to the frame, outline it with the resisting agent, omitting only the dash lines which indicate shading effect. When the worker is ready to apply the dyes in the places where the dash lines are, he can apply them in rapid succession, one right after another.

This particular design calls for two shades—one, dark, right out of the bottle, and the other, the same color, but very much diluted with water.

Having prepared them ahead of time, and using two separate brushes, the worker should apply them, one tint after another, while they are wet; and then, to make a perfect blending, brush it lightly with a clean, damp brush on the joining line.

When dry, these two colors are perfectly blended, thus producing an effect of one shade coming out of another without any sign of joining lines, as if they were a gradation of colors from the lightest shade to the darkest.

PAINTING OF THE FEATURES OF THE FACE AND EXECUTION OF THE HANDS AND FEET

In textile work, it is very important to know the details of proper painting of the features of the face and execution of the hands and feet. Very often the work is entirely ruined just through poor execution of the above mentioned details, though the rest of the work is nicely done.

The following illustration shows a design of Buddha. This design gives to the worker an opportunity for detailed miniature work and the making of narrow lines; also an opportunity to execute the features of the face and details of the hands. If it is nicely done, and the color scheme properly followed, it will produce a very effective wall decoration, or,—if enlarged to proper size,—a wall hanging.

This design is very effective if it is outlined with yellow or gold Paint Stopper. *The features of the face and the palms of the hands should be traced with heavy pencil lines*, and the painting of them left to the end as a finishing touch. All the body lines of the design, and the lines of the arms up to and including the wrist line, and the contour of the face should be done with tan Paint Stopper; and the lines must be as narrow as possible, but very definite all the way through.

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The color of the body and the face should be a very much diluted brown, almost tan, with a little pink mixed together, (pink produced from scarlet by diluting it with water), and the face and the body should be covered up with this color and left to dry. Then, when the color is thoroughly dry, the pencil lines of the palms of the hands will be seen easily and should be outlined very lightly with a very light shade of brown Paint Stopper.

THE USE OF RESISTING AGENT AS A NON-SPREADABLE DYE

Many a time, the worker, in order to facilitate the execution of a design in miniature form, uses resisting agent of different shades as a non-spreadable dye instead of the usual dyes. For example the same design of a Buddha can be taken and executed in miniature form.

The design should be traced without being enlarged, and executed with different shades of paint stopper only.

To obtain the necessary light shades of paint stopper according to the color scheme supplied, the worker should use white or colorless stopper, with which to reduce the original shades to the desirable light tints, and apply the stopper in all the detail work except in the places where the usual dye will be easier and cheaper to use, such as the border and the background.

When all this work is done, the student can outline the design with thin, subtle lines of the gold stopper, thus emphasizing the pattern. Then the background and the border can be filled in with the regular liquid dye.

ENLARGING THE DESIGN

In case a student wishes to enlarge the design, he can do it very easily by employing a special instrument for that purpose sold in every artist's materials store, under the name of PANTOGRAPH. Directions for the use of that instrument are usually enclosed; and they are so explanatory, and the instrument is so easy to use, that I feel it is not necessary for me to go into any detailed explanation.

THE FINAL EXAMPLE OF WORK IN PAINTING ON TEXTILE

As to a final example of the work in painting on textile, I wish to refer the worker to the following illustration, and repeat again all the necessary methods of application of the dye and the resisting agent onto the material while painting the required design.

PAINTING ON TEXTILES



ILLUSTRATION OF THE BUDDHA DESIGN.

PAINT STOPPER RECOMMENDED: Gold, Orange, Yellow, Light Blue,
Brown or Tan

1. Jet Black, 2. Scarlet, 3. Dark Blue, 4. Very Light Blue, (diluted Blue),
5. Yellow, 6. Brown, 7. Gold, 8. Green, 9. Pink (diluted Scarlet), 10. Blue, 12.
Violamine, 13. Orange, 14. Sea-Green (diluted Green No 1), 15. Tan (diluted
Brown), 16. Gray (diluted Jet Black).

FEATURES OF THE FACE are to be traced with pencil before coloring the
face. When face has been colored and dry go over pencil lines with Dark Brown
Paint Stopper.

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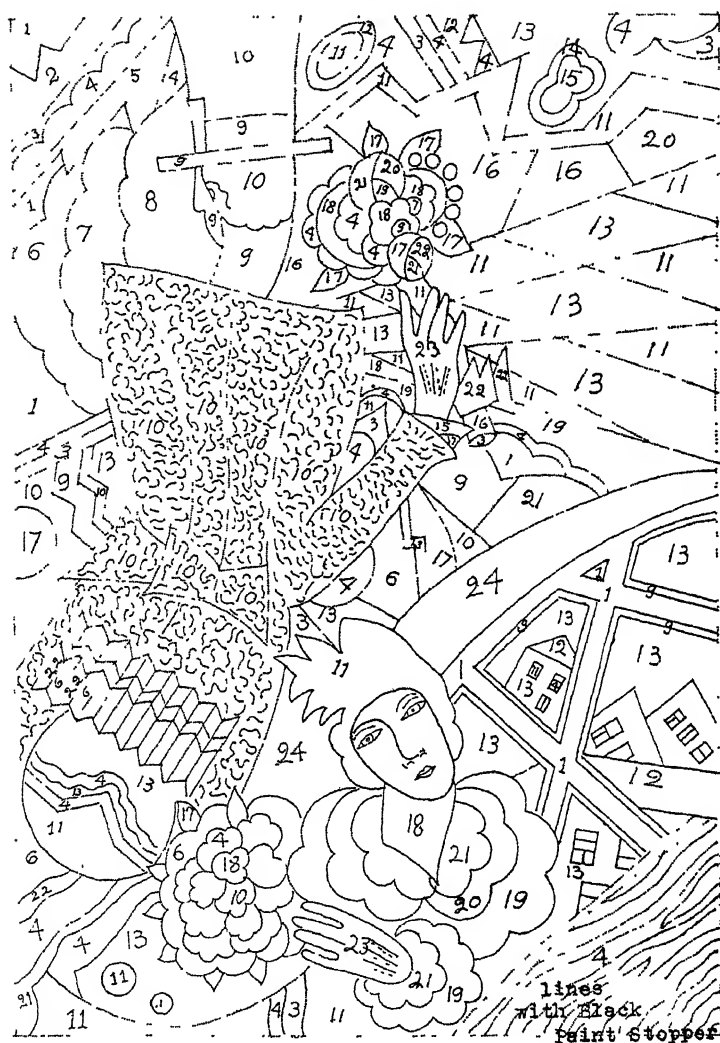


ILLUSTRATION OF THE DESIGN FOR FINAL EXAMPLE IN PAINTING ON TEXTILE

PAINT STOPPER White, Gold, Black, Brown, Green No. 1 and Yellow

1 Dark Brown 2 Light Brown 3 Gold 4 Scarlet 5 Diluted Orange 6 Dark Olive Green (mixture of Green No. 2, Tan and a little of Black) 7 Diluted Dark Olive Green 8 Diluted No. 1 (Sea Green) 9 Tan 10 Brown (mixture of Scarlet and Black) 11 Black 12 Gray (diluted Jet Black) 13 Light Gray 14 Dark Blue 15 Very Light Blue 16 Yellow 17 Green No. 2 18 Pink (diluted Scarlet) 19 Violet (mixture of Violamine and Blue) 20 Diluted Violet 21 Orchid (very much diluted Violet) 22 Apple Green (mixture of Green No. 2 and Yellow) 24 Mixture of Scarlet and Violamine with a little of Jet Black.

IN DECORATING COSTUME, short curved lines must be made with Gold Paint Stopper, straight lines with Black Stopper. Black Paint Stopper is recommended to use after background is covered with color

FEATURES OF THE FACE are to be traced over with pencil before coloring the face. When face has been colored go over pencil lines with Brown Paint Stopper.

This design is shown, already finished, on the cover of this book; and the student can easily use this cover as a reference to the execution of the technical details of the work, with only the exception that the color scheme supplied with this design is a little different from the one used on the book-cover.

In this design, the student's attention is called to the execution of the hands as well as of the features of the face. The hands are covered with gloves, which are of an apple green color: a mixture of emerald green and yellow, diluted with a little water. Therefore, the outlining must be done in the same shade, with very narrow lines; and the lines and dots on the gloves can be done with the brown stopper.

The contour of the face should be done with a light tan color stopper in very narrow lines that definitely penetrate through. The features should be traced with heavy pencil lines, the face be tinted with a light tan color, and a light pink should be shaded in on the cheek bones and chin, and evened up with a damp brush. Under the eyes, a violet shading should be tinted in while the color is still damp, and evened up again with a damp brush, and then should be left to dry.

When dry, the features of the face should be lightly outlined with the black stopper or a black crayon.

Details of the execution of the lips and eyes (meaning, the eyeball, the iris, and the pupil) are usually done in corresponding shades of paint stopper applied as non-spreadable dye, fully covering the required spaces BEFORE THE FACE IS TINTED.

LAMP-SHADE PAINTING

Lamp-shade painting, at times, is a difficult problem; though, if a student will bear in mind the following rules, the problem of the painting of lamp-shades should become a fascinating one, —solved with fine results.

In the very beginning, the worker should cover all the metal parts of a lamp-shade with cotton material before the painting is done; and, of course, after the design is traced onto a lamp-shade through tracing paper or a perforated pattern or sketched in, all the sections of a lamp-shade must be enclosed in lines of a resisting agent, right next to the metal frame, thus excluding all the possibilities of colors getting in contact with the metal parts of the lamp-shade while the background is being put on. The design is outlined with the resisting agent of the proper shade,

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the lines of which are allowed to dry for a few minutes; and then the dye is applied onto the material as in the previous method of painting on textiles. Application of the background is to be done according to the previously explained rules, thus completing the painting of a lamp-shade.

After the painting is done, and the colors are completely dry, the lamp-shade can be lined with a lighter material—chiffon or georgette or any other lighter material available. AFTER IT HAS BEEN LINED, all the metal work on the outside of the lamp-shade as well as the top and bottom rims should be covered up with braid of the proper shade, and the lamp-shade is finished.

To make the base of the lamp-shade, a plain piece of wood of any shape may be taken. The base of the lamp-shade can be easily decorated, painted in the same design to match the design of the shade itself. The base of the lamp may be made out of three-ply wood and painted or lines burned to repeat the design of the shade, thus making a beautiful unit of a lamp shade and base, as the following illustrations show.

THE MAKING OF A LAMP-SHADE

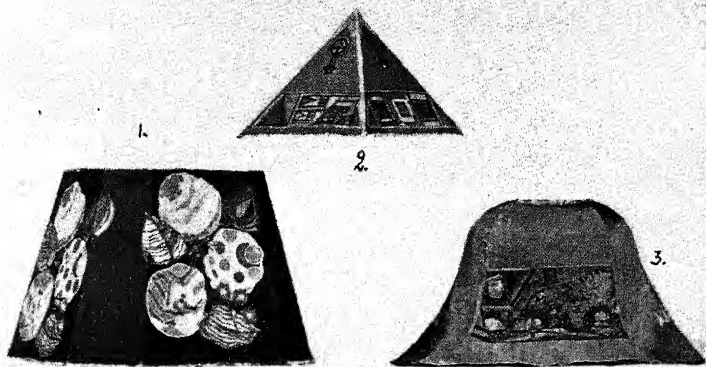
Let us proceed to make a lamp-shade such as No. 5 in the following illustrations.

The frame is covered by winding cotton tape around it; the strips of pongee, cut to the size of the sections, are sewn onto the frame.

The design is traced through a perforated pattern. The worker should outline all the design in the proper shade of resisting agent, and outline, also, all the sections of the material on both sides of the metal frame wires, thus enclosing them within the resisting agent lines, and preventing the background dye from spreading forward and smearing the edges.

The dye should be applied in accordance with the previously explained method of textile painting, bearing in mind one very important rule: that, ALL THE SHADES OF THE DESIGN ON A LAMP-SHADE MUST BE TWO OR THREE SHADES DEEPER THAN WHAT THE SAMPLE COLOR SCHEME OF THE DESIGN CALLS FOR, due to the fact that, through the light, colors will show up lighter. When the painting is done, the lamp-shade can be lined with chiffon and covered up with braid of the proper shade. The color scheme of the design may be worked out to harmonize with the color scheme of the room. For a base, four pieces of thin three-ply wood are glued together

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LAMP SHADES HALF FINISHED



COMPLETED LAMP SHADES

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and shaped to the illustrated design, with the outline burnt in and painted in a color scheme to match that of the lamp-shade.

Now attach it to a little wooden stand, and the lamp-shade is finished. A hole should be drilled for electric wire.

The method of burning and painting wood is explained in a separate chapter. The worker, therefore, should refer to the chapter on wood burning and follow the instructions described there.

PAINTING ON MUSLIN AND CHEESE-CLOTH

In view of the great use of cheese-cloth and muslin material in the recreation centers and playground fields in connection with pageantry work and stage costuming, I feel it is necessary to explain the easiest method of painting on these particular materials.

In many cases,—almost always,—muslin is sold starched and loaded. Painting on it through the application of cold resisting agent is very difficult. Liquid dyes very often do not penetrate, and do not spread quickly enough, making work on this material unpleasant and tedious.

As to the cheese-cloth, this material, being very elastic, is difficult to stretch onto the frame properly; and, due to its meshy quality (even though sometimes it is very closely woven), presents a problem for the worker who would paint on it in the usual manner of painting on textiles.

In painting on muslin, only wax resisting agent can be used successfully; and the colors are applied while they are warm, being heated continually on an electric or a gas stove.

When applied warm they will penetrate through, and nice even results can be obtained.

But the best results in painting on muslin as well as on cheese-cloth are obtained through the use of stencils.

This method is very quick, and good enough for the desired effect. For example, the worker wishes to make several blouses and skirts of matching design for dancing costumes in different styles, according to the type of dances performed.

Let us take the costume for a Spanish dance festival. The blouse and skirt made out of cheese-cloth, are decorated with red roses which are painted on through stencils, the stencils having been cut out of a special, oiled paper obtainable at any artists' materials store.

The paint is applied through the stencil in three or four colors in accordance with the requirements of the design. (See stencil illustration.)

PAINTING ON TEXTILES



ILLUSTRATION OF THE STENCIL.

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DYES USED IN STENCIL WORK

The dyes that should be used in stencil work are sold under the name Stick Print Dye, or may be made up by the worker himself by mixing paint stopper half and half with a liquid dye of a corresponding shade. If necessary, plain liquid dye may be used in stencil work.

CUTTING STENCILS

Special stencil paper can be purchased, or heavy cardboard paper can be used for this purpose. The design is traced onto the paper through carbon paper or sketched in by pencil. The places to be painted should be cut out with a razor blade or a sharp knife. (It is best to use a stencil knife.) In case plain cardboard is used, it should be oiled or shellacked after it has been cut in order to prevent the dye from sticking to it.

APPLICATION OF THE DYE

Stick print dye or a mixture of Paint Stopper and liquid dye may be applied to the material through a stencil with a brush or felt pad, using a different pad or brush for each color. For instance, the design calls for one rose of a red color, the other pink, and the third yellow, with the leaves and stems in green.

The necessary things should be prepared ahead of time. The material to be painted should be placed on a table having a soft paper pad underneath it, and thumb-tacked to the table to prevent it from moving. The stencil covering the spaces to be painted, is also thumb-tacked or put firmly onto the material, and the colors applied with the brush or a felt pad, one shade after another. When all the shades are applied, the stencil is lifted up with a quick, upward movement in order to prevent the smearing of the dye; and the painting is done. Liquid dye may be applied through an ordinary metal screen by holding the screen over the stencil and brushing the dye through it onto the material.

The worker should bear in mind not to have very much dye on the brush. Just moisten the brush so that the paint will fall down onto the material in a spray of tiny speckles, thus producing a very even effect, and preventing the occurrence of any blotches. The above mentioned method of painting on cheese cloth and muslin is the most satisfactory and the least inexpensive to use.

MAKING ARTICLES OF WEARING APPAREL (SILK PAJAMAS, DRESSES, BLOUSES, SCARFS, ETC.)

It is preferable that the full length required by the pattern of white or light colored material, should first be stretched on a frame. The dress pattern is then marked on, the design sketched, outlined, and painted; then the material steamed and washed; and only after that, cut and sewed. In applying the background, the worker should bear in mind to have enough dye on hand, figuring three ounces of liquid dye to each square yard of background to be painted. To be sure of the best results, it is better to have dye left over than to stop painting in the middle of the work in order to mix up or get more dye with which to finish it.

Painting on ready made articles of wear is not advisable, due to the difficulties encountered in steaming and washing them. But small articles, such as collars, cuffs, lapels, or ornamental designs on the bottom of a skirt, may readily be attempted. In this case, the painted articles to be attached to ready made dresses, should be steamed and washed first, and then hemstitched to the dress or inserted by applique work.

ARTICLES OF INTERIOR DECORATION such as, lamp-shades, wall hangings, piano covers, curtains, draperies, and various articles for religious purposes, do not have to be steamed and washed, inasmuch as all painted goods can be easily dry cleaned without harming the colors or marring the finished article.

PREPARATION ON THE COLOR CHART

The student should acquaint himself at the earliest possible moment with colors, their application and dilution. It is well therefore, to make a color chart as one of the first things to be undertaken. If a piece of pongee, forty by twenty inches is used, leaving a one inch margin on each side, it will provide for nineteen columns, two inches in width; and three, in turn, can be cross-hatched with horizontal stopper lines to make each column contain nine two inch squares to be colored.

Use a colorless stopper, for these lines in order that the colors in the chart will appear in their own value. Numbering the nineteen columns, beginning with the column on the extreme left of the frame, I recommend the following order or sequence for the arrangement of the colors so that they will be set off in contrast with those adjoining. This will avoid creating a distorted idea of the essential characteristics of each shade in the worker's mind.

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In the extreme left-hand column, color No. 1 is yellow. Adjoining it to the right, color No. 2 is scarlet, etc., etc. Working to the right.

Color Number	3	.....	Brown
"	"	4	..... Orange
"	"	5	..... Emerald Green
"	"	6	..... Violamin
"	"	7	..... Blue
"	"	8	..... Purple
"	"	9	..... Jet Black
"	"	10	..... Gold
"	"	11	..... Blue-Green
"	"	12	..... Dark Blue

The arrangement does not exhaust the color chart's capacity, but leaves open the extreme right hand column which the worker may use for other mixed shades in accordance with the results of his later experiments. This chart will then become a record of his own color needs.

The order of color dilution in each column follows the table below. (Drops to be measured by a medicine dropper).

Solution A	1 drop of color to	1 drop of water
" B	1 " " " "	4 drops of water
" C	1 " " " "	8 " " "
" D	1 " " " "	10 " " "
" E	1 " " " "	12 " " "
" F	1 " " " "	15 " " "
" H	1 " " " "	18 " " "
" J	1 " " " "	24 " " "
" K	1 " " " "	28 " " "
" L	1 " " " "	33 " " "
" M	1 " " " "	38 " " "
" O	1 " " " "	45 " " "

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"	P1	"	"	"	"	55	"	"	"
"	Q1	"	"	"	"	65	"	"	"
"	R1	"	"	"	"	75	"	"	"
"	S1	"	"	"	"	90	"	"	"
"	T1	"	"	"	"	110	"	"	"
"	U1	"	"	"	"	125	"	"	"
"	V1	"	"	"	"	175	"	"	"

The samples recommended for the color chart are as follows: take color No. 1, yellow, for example. At the top of the column, fill in the two inch square with undiluted color direct from the bottle; beneath it, use solution A, 1 to 1; and, in order beneath that, solution D, 1 to 10; solution E, 1 to 12; solution H, 1 to 18; solution K, 1 to 28; solution O, 1 to 45; solution R, 1 to 75; and solution U, 1 to 125.

The use of the color chart enables the worker to determine shades and how to secure them. He can cut holes in a card, laying them over the squares selected, and note the harmony which he wishes to work with; or he may draw up on a scrap piece of material some stopper-enclosed spots, and paint the colors side by side experimentally in those spots, to bring them into close relationship and decide, by that means, how they will look in his finished pattern. With the help of this color chart, in addition to the number of illustrations previously given in this chapter (very effective in their color harmony), the worker,—as experience shows,—can get a sufficiently good idea of color combinations in connection with the above mentioned instructions of painting on textiles. The following illustration shows an example of the color chart mentioned.

CHAPTER ONE

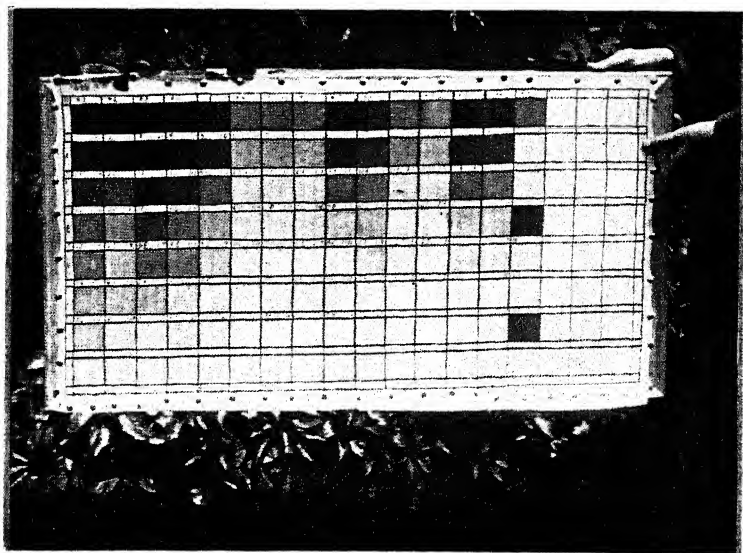
A FEW WORDS TO CLOSE THE CHAPTER

In concluding this chapter, "PAINTING ON TEXTILES", I wish to say once more that hand work on fabric, using water color dye as a medium, offers an almost limitless field for the amateur who wishes to experiment and express himself in tone and color through the above mentioned medium.

It also enables the professional, through the use of the method, explained herein, to produce master pieces of this type of work.

Hand painting on fabrics has been known to artists for centuries; but the medium of this craft was a wax medium, which was made by mixing melted wax with dry colors and applying it to the fabric with a brush. As I said before, this method, due to the fast drying properties of wax, is extremely difficult. It is almost impossible to correct any mistakes that may have occurred while working. Therefore, the need of a new method of painting on textiles was evident; and I hope that this easy method, explained by me, will prove to be of value to all those who wish to express themselves in this medium. This method may be used on any kind of materials, from the cheapest of cottons to the richest of silks and velvets, or the finest of laces and chiffons.

PAINTING ON TEXTILES



COLOR CHART, WITH OPEN SPACE FOR FORMULA BELOW EACH SQUARE. NOTE METHOD OF ATTACHING SILK TO FRAME

CHAPTER TWO

BLOCK PRINTING ON TEXTILES

BLOCK PRINTING

The art of the craft of block printing consists of cutting a design in relief upon blocks of wood or linoleum, so that the raised parts, when charged with colors, will transfer the design to whatever fabric the block is stamped upon.

Making wood cuts is quite a difficult task; and often almost impossible for an amateur to master. For this reason, it has not been practiced extensively on the fields of playgrounds and recreation centers. However, a short time ago, when the less difficult craft of cutting blocks from linoleum was introduced, block printing became a very popular craft. Printing fabrics with blocks is preferable to printing on fabrics through the medium of stencils, because stencil paper cuts, oiled or waxed, and brushed with paints or by means of an air-spray, must be planned and cut in such a way that there will be no detached pieces. The design sometimes has to be crossed at frequent intervals by bridges to support the central masses of the figures; and, of course, makes the craft of cutting stencils, difficult for an amateur, unless only very simple designs are attempted.

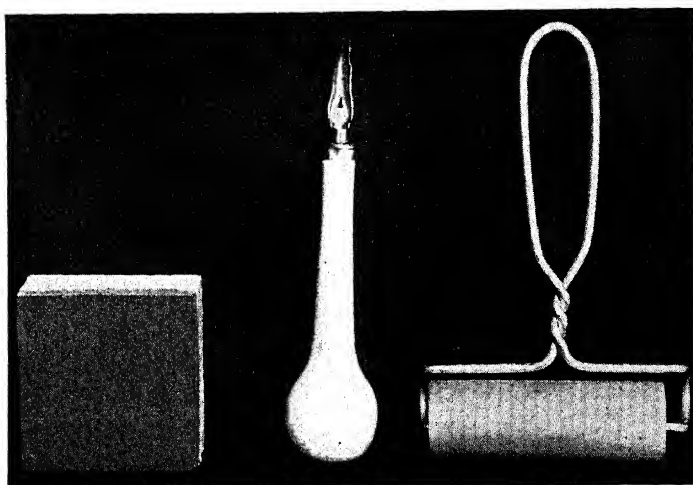
The cutting of linoleum blocks, does not present this difficulty, and makes for a simplified method of printing on fabrics. It also offers a distinctive technique; and the worker will find in it the fundamental process of printing and engraving.

MATERIALS USED IN THIS CRAFT

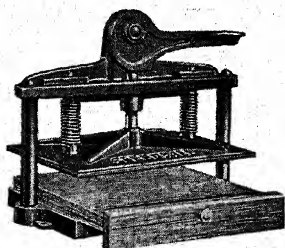
1. Linoleum.
2. A block of wood.
3. A selected set of carving tools (gouges, preferably made out of specially tempered steel).
4. A rubber roller.
5. A block printing press.
6. Sand paper.
7. A can of good glue.
8. Printing ink.

The following illustrations show the photographs of the materials to be used, and also a picture of linoleum mounted on a wooden block in the way it should look when it is ready for work.

CHAPTER TWO



BLOCK PRINTING PRESS



PHOTOGRAPHS OF THE MATERIALS USED IN BLOCK PRINTING
ON FABRICS.

SELECTING MATERIALS

It is very important to select a fine grade of linoleum, because the finished work depends a great deal upon the quality of the material chosen. In selecting such material for making a block, the worker should bear in mind that the soft surface of the linoleum should be smooth.

The smoother the surface, the better it will print.

FOR FINE AND DETAILED WORK, HARD LINOLEUM SHOULD BE USED; AND FOR LARGE PRINTS, soft linoleum. If the surface of the linoleum is not smooth enough, it should be smoothened with sand paper. Battle-ship linoleum which has a fine finish and is not brittle, is the best to use.

MAKING LINOLEUM BLOCKS FOR THE PRESS

Block printing may be done with a press if it is necessary to execute an important design.

Otherwise, printing by hand pressure will suffice.

In case the linoleum blocks are made for presses, they must be mounted on wooden blocks, so that they may be locked up into the case of the job-press. However for ordinary purposes, the mounting of linoleum onto wooden blocks is not necessary,—though preferable because it makes for ease in handling, and therefore produces better results.

MOUNTING LINOLEUM ONTO THE WOODEN BLOCK

Mounting linoleum onto the wooden block is a very easy job. A wooden block of the required size should be prepared—the surface of it smoothened with sand paper.

Spread a good quality glue evenly over the wood, and paste the burlap side of the linoleum onto it, putting them under pressure until dry.

Sometimes it is difficult for the worker to obtain a good glue. In that case the linoleum may be mounted onto the wooden block with nails. The worker should cut little spaces, in which small nails will be inserted, out of the linoleum, in such a way, that the nail-heads will be pushed deep down, up to the burlap, thus preventing the nail-heads from showing on the print. After the linoleum has been mounted onto the wood, if the block is not square, the edge of the block must be cut vertically with a sharp

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instrument—a knife or a saw—and squared in the corners with a carpenter's square. But almost every artist's material store carries linoleum blocks already mounted which can be procured at very little expense.

TRANSFERRING THE DESIGN ONTO THE BLOCK

In preparing the block for work, the worker should bear in mind that the linoleum block *should always be larger than the pattern used, extending at least one inch beyond its outside measurements.*

The design may be sketched onto the linoleum, or transferred by carbon paper,—preferably black.

Accuracy in tracing is very essential for best results. Therefore, it is recommended that the pattern, together with the carbon paper, be fastened to the linoleum with thumb-tacks, placing them outside of the pattern. When the tracing of the design is done, the block is ready for work.

TRACING LETTERS

In tracing letters onto the linoleum blocks, the drawing must be reversed if not so drawn. It may be done with the aid of a mirror, placing the letters against the mirror, or placing the drawing on carbon paper with carbon side up, and traced and then retraced onto the linoleum. All letters for printing must be cut in reverse so that they will print from left to right.

DESCRIPTION OF TOOLS

The worker should never use inferior tools for cutting the design, because they soon become dull and, therefore, are no good to use. Very fine, specially tempered, steel tools can be purchased very inexpensively at every artist's materials store. These tools are:

1. Small gouge.
2. Large gouge.
3. Small veiner, shape U.
4. Veiner, shape V.
5. Large veiner, shape U.
6. A sharp pen-knife.

These particular tools are generally used by the workers,—

professionals as well as amateurs,—and are properly ground and fitted into a good handle. Good tools are necessary for good workmanship.

The previous illustrations show these particular tools.

CUTTING DESIGNS

In cutting designs, it is very important to observe one rule: the worker should find the best position for the linoleum block in order to simplify the handling of the process, and to see that the light should fall properly on the linoleum. In other words, the worker should avoid a glare so that the lines of the design will be in the shade and very clearly seen by him.

Cutting is done in the direction away from the worker, and the tool held steadily and at about a 45 degree angle. The first step in cutting the design should be the cutting of the outlines of the design, and cutting them, **NOT ON THE LINE, BUT ALONG-SIDE OF THE LINE.** When the outlining is done, the larger parts, which are not to be printed, should be cut away with either one of the gouges, depending on the size of the design and the nature of the pattern.

THE WORKER SHOULD AVOID SHARP, AND VERTICAL LINES AND CUT SLANTING LINES; and, doing so, will always obtain the best results. I would like to emphasize that all possible efforts should be made to obtain firmness and accuracy of line while working. If the tool is firmly gripped in the palm of the hand and guided with the forefinger, and at the same time, the block is held with the flat part of the free hand, this can easily be accomplished. **IN MAKING THIN LINES,** the worker should use very little pressure; and, of course, the more pressure is used, the wider and thicker the line will be cut.

CHAPTER TWO

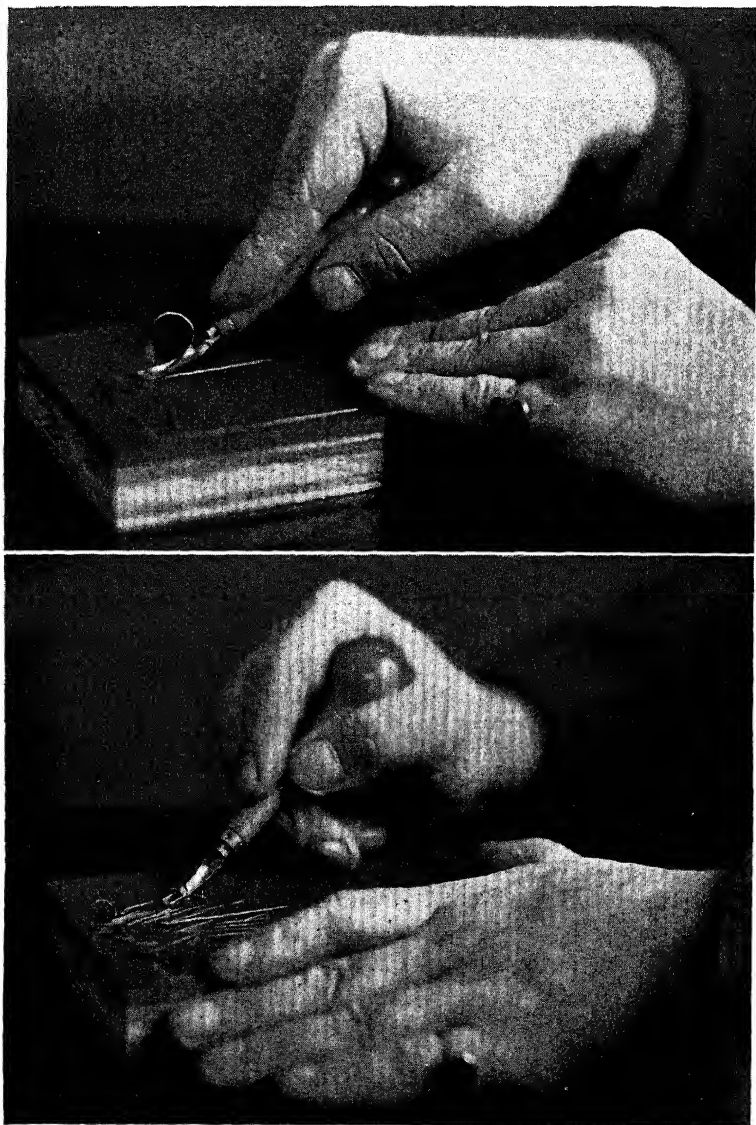


ILLUSTRATION OF A. PHOTOGRAPH SHOWING THE PROPER WAY OF
HOLDING THE TOOL AND THE OTHER PHOTOGRAPH SHOWING
THE PROPER WAY OF HOLDING THE TOOL WHEN CUTTING
LINES. WHILE USING LIGHT PRESSURE.

CUTTING STRAIGHT LINES

In cutting a straight line, the worker should try to cut it with a single stroke; and in cutting a square, it is best to cut each line with a single stroke in four separate cuts, moving the block for each cut in preference to turning the tool around the corners.

Thin, fine lines in outlining work are produced through the employment of a veiner, shape V, and, of course, the use of only very little pressure.

THE DEPTH OF THE CUT

The cutting should be deep, but not so deep as to cut the burlap of the linoleum.

FIRST STEPS IN CUTTING A BLOCK

The worker should always experiment in the very beginning on a small, simple design, whose lines are far enough apart to permit a certain ease in cutting them so that he may acquire the necessary skill that is essential to the development of fine workmanship in this craft.

Let us cut a block to make a little star, and repeat all the necessary steps to be taken in making the first cutting of the block. The block is purchased ready made. The design of this little star is transferred onto the block through a carbon paper.

Now we have to make sharp, straight outlines. Therefore, let us take a small veiner, shade V, and holding the tool firmly in the palm of the hand, guiding it with the forefinger and, at the same time supporting the block with the flat of the free hand, try to make sharp, straight lines with a single stroke, cutting them in the direction away from the worker and moving the block; thus making it unnecessary for the tool to be turned at the points.

When this outlining is done, we can gouge the background—(places that are not to be printed); and, by gouging it out, will receive a raised design of the star which, when charged with printing-ink, will print the design of the star onto the material.



DRAWING OF THE STAR

CHAPTER TWO

BACKGROUND AND DETAIL WORK ON THE BLOCK

In the craft of block printing, it is very essential to develop an eye for detail work and proper decorative work on the background.

The background is not always completely gouged out, and can be made very interesting with detail work, which will effectively offset the design and bring the finishing touch to its execution. Good effects in detail work on a background can be attained only through experimentation, by using different strokes in various shapes.

The following illustrations give examples of experimental detail work on background through the use of different strokes in various shapes.

The background should be cut out with freehand stroke, achieving the effects nonchalantly, without any mechanical exactness and use of a ruler for perfect lines.

The less the worker employs mechanical exactness in the detail work of a background, the better will be the effects that are attained.

BORDER EFFECT

Borders are very essential in executing the design. They bring out the pattern, make the print firmer, give a better printing surface, and support the fine lines. Therefore, the use of borders in cutting blocks is very much recommended by the craftsmen in this field.

CUTTING LETTERS

The best way to cut letters is with the aid of a veiner, shaped U, cutting them in single strokes. Where the letters are thin and light, the cutting should be done with as little pressure as possible; on the other hand, where the letters are solid and heavy, the cutting may be done with more pressure, using the same tool.

In cutting letters, the worker should use a firm stroke, development of which can be attained only through experimentation.

THE PRINTING PROCESS

In preparing for the printing process, the worker should have on hand, first, a printer's brayer, which can easily be purchased or made by the worker out of a piece of smooth rubber hose and a

piece of round wood to fit it snugly; and, second, a marble slab, or a glass, or a piece of non-porous material, 8 inches square.

If permanent printing is desired, printer's ink can be used, and the brayer cleaned afterwards with benzine or turpentine. After using water colors, the brayer is cleaned with plain water. Water color printing inks are very rich in colors, and are largely used by artists.

A printing press or an ordinary book-press, with a wheel and screw, is desirable, but not necessary. A little of the ink should be squeezed out of the tube on the glass or marble slab, and rolled with the brayer until the brayer is entirely covered with ink of the same consistency all over the roller. Then the color should be rolled over the linoleum block, making sure that the ink is spread evenly over the entire cut.

A reasonable quantity of soft paper padding should be used under the paper or fabric to be printed. Then the block, charged with ink, is carefully placed on the paper or the fabric, and pressed down by using the press or by hand pressure.

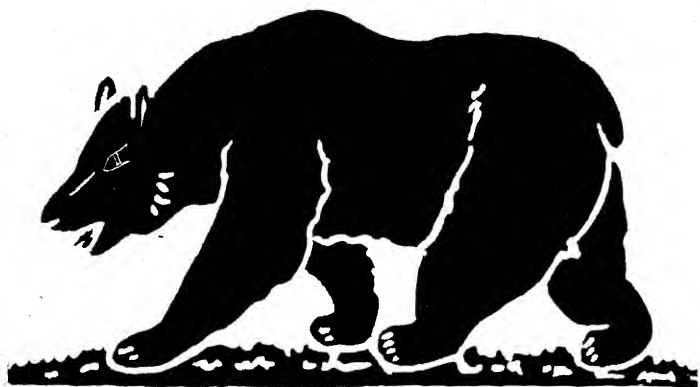
If a press is used, care should be taken to see that block is in the center of the press, so that the pressure can be applied evenly. Then the block is released out of the press, and the print is finished.

If it is desired to print a large area, or to have real solidity of color, it is advisable to use more pressure. Block printing may be used for greeting cards, illustration work, printing book covers, monograms, banners, flags, book marks, etc., etc.

IN CASES WHERE THE DESIGN IS EXECUTED IN A NUMBER OF COLORS, A SEPARATE BLOCK IS MADE INDIVIDUALLY FOR EACH COLOR TO BE PRINTED. - In other words, if the design is printed in three colors, three separate blocks must be cut.

Now let us take another example of block printing. The following illustration shows a design of the California State Flag. This design was executed by a beginner; and there are a number of inaccuracies in the cutting of the block (especially in the cutting of the letters). But, it is a nice example to follow; and the worker should make it, trying to avoid the mistakes illustrated in this example. On close examination of it, one will notice that the detail work in the design of the bear was not executed perfectly; and the absence of skill, in making straight lines with one stroke, especially in the lettering, is evident.

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CALIFORNIA REPUBLIC

ILLUSTRATION OF THE MENTIONED WORK ON THE CALIFORNIA
STATE FLAG.

*Note the inaccuracies in the cutting of the block (especially in the cutting of
the letters).*

BLOCK PRINTING ON TEXTILES

EXECUTION OF THE DESIGN

A SMOOTH piece of linoleum, extending one inch beyond the outside measurements of the design, is taken and mounted onto a wooden block, which is squared with a carpenter's square and smoothened with sand paper. The design is traced through black carbon paper, and the outlining of the bear is cut with a veiner, shaped V, along the sides of the lines, making slanting incisions.

Detail work and fine lines are cut using very light pressure, and the background is gouged by using a large gouge. When all is done, the worker has raised the design of the bear, and the block is ready to be used. A little brown textile block printing color is squeezed out of the tube onto a glass, and rolled with the brayer until the brayer is entirely covered with ink of the same consistency all over the roller.

Then the brayer is rolled over the block, spreading the ink evenly over its entire surface. Soft paper padding is laid on the table. A piece of white pongee is laid over the padding; and the inked block is carefully placed over the pongee, and pressed down heavily by hand. Or, if there is a press available, the padding paper, with the silk laid over it, and the block placed over the silk, is inserted into the press, placing it exactly in the center so that the pressure may be applied evenly. The Block is released, and the print is finished.

The lettering in this particular design may be printed in the same ink, and therefore cut on the same block, transferred onto it in reverse, using the previously described method of transferring letters onto a block. Or, these letters may be printed in another color, in which case a separate block should be made, and the process of printing repeated anew.

The worker should pay very close attention to the correct placement of the letters; and, if accurately done, the worker can print a great number of these flags in a very short time.

PRINTING A LARGE PIECE OF TEXTILE WITH SMALL BLOCKS

Very often the worker has occasion to print a small pattern over a large area, repeating it in certain formation in order to complete the design. In this case, the material used should be stretched in full length over the padding on the table.

(For padding large areas, it is better to use flannel, placing it wrong side up, or paper padding, spread on the table in such

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a way that there will be no creases, and covered with starched cheese-cloth). It should not be stretched too tightly, but stretched very evenly, fastening it to the table with thumb-tacks at close intervals. The blocks, charged with the printing dye in the manner described previously, may now be applied to the material in a row or in any formation that the worker desires to carry out.

The design may be executed in various color harmonies, using only the one block, but cleaning it thoroughly of one color before the next one is applied. The color harmony should be worked out ahead of time and spaces for the different colors figured out by the worker.

If it is desired to paint the background, the material must be taken off the table and stretched onto a frame. Then the outside lines of the block design should be outlined with paint stopper lines, thus preventing the block-printed spaces from being marred by the background dye.

The background may now be filled in, in accordance with the previously explained method of painting on textiles.

If one design requires the use of several colors for its execution, one block must be made for each color, bearing in mind that each block for each individual color must be cut very accurately, and, when applied, must fit perfectly into the space allotted for it.

The printing of the second color must only be done after the first one is thoroughly dry, and so on with the rest of the blocks. The following illustrations show a number of different block prints, printed in one and two colors, with the detail work on the background, and also show the effect of the border support.

They are easily executed, and if he follows all the directions carefully, can use them to good advantage.

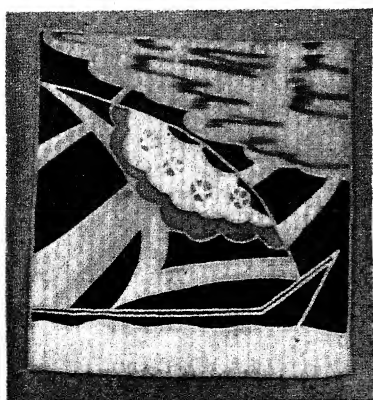
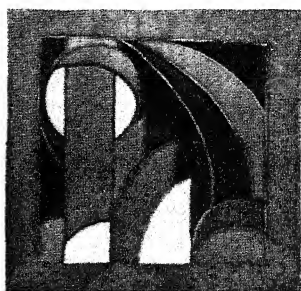
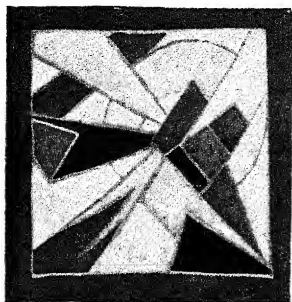
The second illustration shows a number of designs suggested for Christmas cards which can be used by the worker for block printing on paper as well as on textiles.

THE VALUE OF THE BLOCK PRINTING PROCESS

The process of block-printing on textiles—using linoleum for blocks,—is so easy and effective, and the method I have advocated, so expedient, that it has attracted the interest of a great many people in playgrounds, recreation centers, schools, homes and studios.

The short time that it takes to paint textiles by this process has made it a very popular and beneficial pastime, and has proved to be of value and interest to amateurs as well as to professionals.

BLOCK PRINTING ON TEXTILES



PHOTOGRAPHS OF ILLUSTRATIONS SHOWING A NUMBER OF DIFFER-
ENT SMALL BLOCKS WITH BACKGROUND DETAILS, AND
THE EFFECT OF THE BORDER SUPPORT.

BLOCK PRINTING ON TEXTILES



PHOTOGRAPH OF DESIGNS SUGGESTED FOR CHRISTMAS CARDS.

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SCREEN PRINTING

SCREEN PRINTING

Where time is limited and it is necessary to produce one particular article in quantities, the screen printing process of printing on textiles is the quickest and most expedient to use.

Such articles as: emblems, flags, sorority emblems, signs, special articles for prizes, dress goods, handkerchiefs, table covers, etc., etc., are very easily made by the use of this method.

The screen process is a comparatively new one; and only within the last thirty years, have the possibilities of the use of screen printing as a method of decorating textile fabrics been fully revealed. The use of the following methods has created a great desire for this particular craft; and craftsmen have demonstrated efficient and inexpensive means of decorating almost any kind of textile material: cotton, linen, wool, silk, etc., etc.

The significant advantage of the screen process over the block-printing process lies in the practicability of enabling the worker to print large areas quickly; for blocks are very rarely cut over 20 x 20 inches.

It is a time and labor saving device, and the results had by the use of this method are really gratifying.

The screen printing process is greatly used by fabric printers in preference to the block printing method, particularly when printing is done by machine. For the block printing method requires the block to match the size of the roller of the machine.

The screen printing method eliminates this necessity and permits the making of the screens in many sizes.

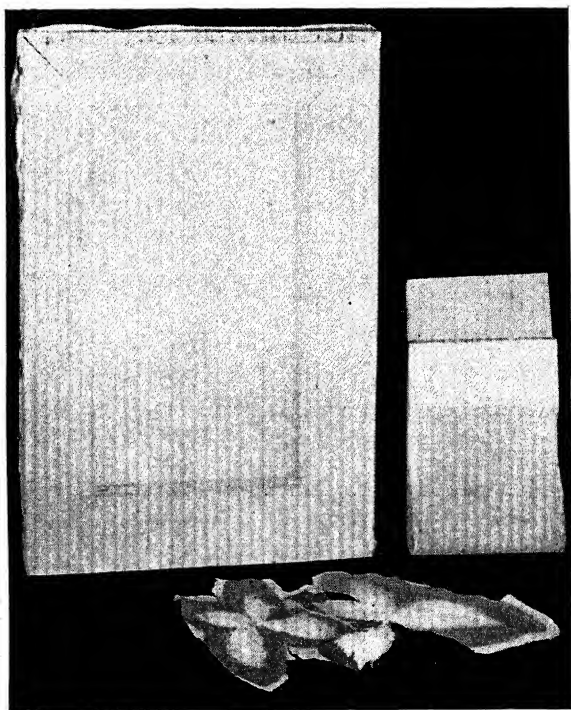
Sometimes screens are made as large as 60 x 50 inches, and great speed can be attained.

MATERIALS FOR SCREEN PRINTING

To start the screen printing process, the worker should have on hand:

1. A solid frame.
2. Screen material.
3. Thumb-tacks or small nails.
4. A rubber squeegee.
5. Felt padding.
6. A table.

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PHOTOGRAPH OF A SCREEN FRAME WITH THE SILK SCREEN MATERIAL MOUNTED ON IT, A RUBBER SQUEEGEE, AND A PIECE OF SILK PRINTED BY THE SILK SCREEN PROCESS.

SCREEN PRINTING

SELECTING SCREEN MATERIALS

Screens are made out of porous materials and the best to use is the so-called Swiss Bolting Cloth, about 140 meshes per inch. If this is not obtainable, a wide range of silks, varying in mesh and quality, can be had, and used successfully. However, a lot of them shrink, and it is therefore best to wash them and dry them on the frame before the design is traced on.

CONSTRUCTION OF THE FRAME

In making a frame, the worker should bear in mind to construct as solid a frame as possible. It is best to have strips of wood, about two inches thick and four inches wide; and the ends of the strips should be dovetailed to insure perfect fit and to prevent the frame from warping or losing its shape. It is very essential to observe this, as a misshaped or warped frame can cause a great deal of grief while working.

PREPARING THE SCREEN

The worker should observe a very important rule: **WHEN THE FRAME IS LAID DOWN, IT MUST BE PERFECTLY FLAT AND LEVEL.** The screen material which has previously been washed, should be nailed very firmly and tightly onto it, or tacked while wet, and left to dry. In tacking the material onto the frame, care should be taken to tack it onto the side of the frame, thus preventing the heads of the thumbtacks or nails from showing on the material when the screen is used. (If it is impossible to obtain a silk screen material or Swiss bolting cloth, then **ORGANDY** or **PLAIN BOLTING CLOTH**, such as is used for sifting flour, will answer the purpose).

As soon as the screen material is dry, the design may be traced on it; but before doing so, the frame should once more be checked to see that it is perfectly flat and level.

SELECTING THE DESIGN

In selecting the design for the screen process, the worker must try to avoid patterns that are not distinct in their outlines and colorings. He should choose strong, outstanding designs in color schemes that may be carried out either in deep tones or pastel shades.

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TRACING DESIGNS

In tracing designs, the worker should bear in mind that the screen material must extend at least four inches in all directions beyond the design. Two of these inches are provided for working space for the squeegee and the surplus color contained in the tray of the screen; and the other two inches are for tacking the margin. The design can be sketched on with pencil or transferred through a perforated pattern or with black carbon paper.

PREPARATION OF THE SCREEN FOR PRINTING

When the design is traced onto the screen, the parts of the screen that are not to appear in color should be painted with an impervious varnish or a special lacquer paint; the design will then stand out in white against the lacquered paint. It is advisable to hold the frame up to the light to make sure that all the parts of the pattern that were to be covered with lacquer or varnish, were covered completely, as the light will disclose any omissions.

THE TWO INCH MARGIN AROUND THE SCREEN, which was provided for working space for the squeegee, SHOULD BE HEAVILY PAINTED WITH LACQUER OR VARNISH TO PROTECT THE MATERIAL THAT IS TO BE PRINTED FROM ANY EXCESS OF COLOR WHICH MAY OOZE THROUGH THE SCREEN WHILE THE WORK IS BEING DONE.

When the screen is completely varnished and dry, the worker is ready to apply the screen onto the material.

The following illustration shows an example of material already printed by a screen process and used in the textile industry.

PRINTING PROCESS

A very important rule to observe in the printing process, so far as the dye is concerned, is that IT MUST BE STRAINED OF ANY PARTICLES, FOR IF ALLOWED TO REMAIN, THEY WOULD CAUSE STREAKS, AND IF THEY ARE OF A HARD NATURE, THEY WOULD DAMAGE THE SCREEN, SCRATCH THE VARNISH, AND SPOIL THE EFFECT OF THE DESIGN.

The worker should use a large table, pad it with flannel of double thickness or with a felt spread, and stretch a piece of

SCREEN PRINTING



ILLUSTRATION SHOWING JAPANESE DESIGNS USED IN
SCREEN PRINTING PROCESS ON TEXTILE FOR KIMONOS AND
OTHER FORMS OF WEARING APPAREL.

SCREEN PRINTING

unbleached calico cloth over the padding so that all the superfluous color that passes through the fabric, which is being printed, will be received by the calico, thus preventing the color from spoiling the padding material. The calico may be taken off from time to time, washed and used again.

When all the initial preparations have been completed, the material to be printed is stretched over the padding very carefully to avoid any creasing or buckling, and tacked tightly,—not too tightly,—onto the table.

An angle-iron, if possible with ruler markings on it, should be fastened securely to the whole length of the material on one side of the table.

SPECIAL STOP MARKS, MADE OF METAL OR MARBLE, SHOULD BE SPACED ON THE IRON ACCORDING TO THE SIZE OF THE DESIGN ON THE SCREEN, AND SECURED FIRMLY TO THE IRON AND TABLE WITH A SET OF SCREWS.

The screens are placed against the stops so that no overlapping whatsoever will occur, insuring the regularity of the prints.

ACTUAL PRINTING

The technique of the actual printing operation in the screen process, lies in the proper use of the squeegee, the skillful manipulation of which comes only with continued practice.

For actual printing, the worker needs textile screen printing dye and a sharp edged rubber squeegee of a size that permits it to fit loosely in between the two sides of the frame.

A small portion of the printing paste is poured into the end of the screen nearest to the worker. Then the worker moves his squeegee towards the other end of the frame, thus pushing the color paste right across the face of the design towards the other side. Carefully lifting the squeegee, and setting it down again over the remaining mass of color, the worker proceeds to draw it back towards the starting point of the frame, thus assuring the perfectly even spread of color that is being forced through the meshes of the screen material onto the fabric beneath.

Sometimes it is necessary to draw the squeegee over the area several times in order to obtain a perfectly even spread of color. In order to prevent smearing, and to expedite the process, the worker should print every other space, so that by the time he reaches the end of the table, the first space printed has already dried, and he is able to print the alternate spaces.

PRINTING WITH A FEW COLORS

In executing a design that requires a number of colors to be printed, EACH COLOR MUST BE PRINTED WITH A SEPARATE SCREEN. Precaution must be taken to assure the accurate register of colors when brought together; and, with this in view, a few little cross marks are drawn in the margin of the design, which must *be left open and not varnished when preparing the screen for printing*. But these marks must be very tiny; so that they will not show much on the printed fabric; and they will serve only to register the proper place in the application of the various colors. The printing is done in the manner described above; but care must be taken not to apply one screen until the color applied by the previous screen has dried.

PRINTING ON DARK COLORED OR BLACK FABRICS

The screen process can be used on black or dark colored fabrics, employing the regular water color printing paste, provided it is first treated with a discharger paste, which removes the coloring matter from textiles. Discharger paste can be procured either at artist's materials stores or in places supplying printing dyes.

The worker should make a separate screen, the exact shape of the design to be printed, and tack the fabric taut onto a well padded table, and proceed to apply the discharge paste onto the fabric, through the screen in the usual manner, the discharger paste having been mixed with equal parts of tonic acid just before the worker was ready to apply it. Then, after having applied the discharger paste onto the fabric, it should be prepared for steaming in the manner described previously in the section, "Steaming Process" of the chapter on "Textile Painting," and placed into the steam chamber.

In steaming, the color of the fabric will disappear in the places required for the design, and the fabric will be ready for the application of the color paste, which should be applied in the way explained previously.

At present there is a special dye color on the market, which is prepared with the discharger in paste form and sold very reasonably, but only in certain shades. This dye can be applied to the fabric through the screen, and during the steam process, will discharge the black of the fabric, while printing its own color.

However it is often hard to get the required shades in this particular dye, and I have therefore, explained the usual method

of discharging dark colors out of materials, so that the worker will not be handicapped, and will be able to print any colors necessary.

In washing the fabric, the worker should pass it through a bath of a half percent of tartar emetic solution, prepared ten eighths of an ounce to a gallon of water at one hundred twenty degrees Fahrenheit.

EXAMPLE OF THE WORK

The Japanese design shown in the illustration above, is printed in three colors, and is easily executed. Let us proceed to print this pattern.

First, the worker should take the screen printing material, from one hundred forty to one hundred eighty meshes per inch, wash and stretch it very tightly while wet onto a frame made of wood that is about two inches thick and four inches wide, tacking it in such a way that the nails will be in the side of the frame and will not show on the face of the fabric.

Then, when the screen material is dry, the worker should trace the design onto the screen with black carbon paper, varnish the places of the design that are not to be colored, and hold the frame up to the light to make sure that all the necessary places are completely covered with varnish. After the spaces of the design requiring the application of one color are varnished, the same procedure should be taken in preparing the screen for an application of the second and the third color; and, while applying the varnish onto the screen, the worker should not forget to cover a two inch margin as specified before, and to leave open little marking keys or crosses to register the exact places for the other colors. When all this is done, the screen frames must be checked for their flatness and levelness.

Now, felt padding or a double thickness of flannel padding is spread on the table, covered with unbleached calico material, and the fabric to be printed is carefully stretched over the padding and tacked at regular intervals to avoid buckling. The angle-iron, with metal or marble stops placed on it, is securely fixed on the side over the length of the material. The screen frames are applied against the stop marks, thus preventing the overlapping of colors, and the color paste is forced through the screen with the squeegee.

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When all this is done, the printed fabric should be placed into the steam chamber; and, after steaming, can be washed and is ready for use.

COMBINING SCREEN PRINTING WITH PAINTING ON TEXTILES

The usual method of screen printing which I have described above is a very simple one, but requires a large space to work in, and is not always convenient for the person who wants to do only small things, such as little designs for interior decorations, small flags, sorority emblems, or little miniature wall hangings, etc., etc. In cases of this kind it will be found much simpler to combine the method of screen printing with that of painting on textiles, screen-printing the outlines and painting in the spots of colors. This will expedite the process, and will in no way sacrifice the beauty of the work.

Very often, too, the design being intricate in detail, requires the application of twenty or more colors and, if done entirely in the screen printing process, would require twenty or more screens for its execution. But, inasmuch as only one copy of the pattern in this particular color scheme is needed, the making of so many screens is a waste of time, effort and money. Therefore, the screen is used for the application of the outlining only.

The entire design is traced on the screen, the outlines are left open, and the remaining surface is painted with the lacquer.

PRINTING OUTLINES OF THE DESIGN BY THE SCREEN

The outlines are printed with the required color paste onto the fabric which, IN THIS CASE, IS NOT STRETCHED ONTO A PADDED TABLE, BUT ONTO A FRAME IN THE MANNER DESCRIBED IN THE CHAPTER ON "TEXTILE PAINTING". By doing so, the worker will be able to use the screen print color paste as a resisting agent; and, when the color paste is dry, the rest of the spaces of the design are filled in by brush, with a liquid dye.

This method is very handy because the screen print color paste used for the outlining and acting as a resisting agent, is easily matched in color to the rest of the pattern. Of course, the worker must remember to print these lines, so that they will penetrate SOLIDLY THROUGH THE MATERIAL WITHOUT

SCREEN PRINTING

ANY BREAKS. This can be done very easily by moving the squeegee back and forth several times. The following illustrations show the beautiful effects achieved by using this method.

EXAMPLE OF THE WORK

The design in the illustration, showing swans on the bank of a lake, has been traced onto the screen, and only the outlines of it were left open for the color paste to pass through, the rest having been varnished.

The outlines were printed onto the silk with color screen print dye of a bronze shade, the silk having been stretched tightly on a frame. Outlines, printed in this manner, acted as resisting agent lines; and then the rest of the design was filled in with colors in shading effects, according to the rules described in the chapter, on "Textile Painting".

The other illustration shows a design of a persian princess. All the intricate miniature detail work, except the feature lines of the face, were printed with the screen printing process; and the rest of the places of the design were painted by brush with a liquid dye. (See "Textile Painting," the sections "Shading Effects," and "Features and Details of the Face").

The application of this method of screen printing, in connection with textile painting, facilitates and simplifies the work for those who have no skill in the making of steady, firm strokes for Paint Stopper lines, and proves to be a time saver for those who have that skill. It is also a convenience for those who have the problem of executing one intricate design in various color schemes. I want to emphasize again the importance of having these screen-printed outlines PENETRATE THROUGH, and if not, THEN CORRECTING THEM ON THE REVERSE SIDE OF THE MATERIAL BY USING PAINT STOPPER. Of course, all screen printed fabrics must be steamed and washed after the printing is done to remove the stiffness and restore the brightness of the dye.

PRINTING ON WOOL

Wool must be washed to remove the undesirable protruding fibres. In washing wool, soap and soda ash should be employed, in the proportion of one ounce of soda ash to one pound of

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soap, holding the wool in this solution for about an hour at the temperature of 105 degrees Fahrenheit. It is then taken out of the solution and washed in lukewarm water, rinsing it constantly for half an hour, after which it is rinsed in peroxide to bleach it. A special screen print dye is used in printing wools and rayons.

WASHING SCREENS

Screens can be cleaned with a solution of water and acetic acid. Or, if only plain water color print dyes were used, they can be cleaned with plain water and a soft hair brush.

The screen printing process is so easy to apply, and has so many possibilities for its development, that I heartily recommend its introduction into the various schools, playgrounds and recreation centers.

SCREEN PRINTING



PHOTOGRAPH OF THE DESIGN OF TWO SWANS EXECUTED BY COM-
BINING THE TWO METHODS OF SCREEN PRINTING AND
PAINTING ON TEXTILES.

CHAPTER FOUR

EMBOSSSED SOFT, TIN COPPER WORK

EMBOSSSED SOFT, TIN COPPER WORK

Bas-relief work on tin copper is the simplest and most fascinating of the crafts. A great number of very useful articles for interior decoration and household purposes can be made.

Beautiful lamp-shades, gift boxes, vanity cases, baskets, picture frames, toys, book-ends, vases, desk sets, etc., are among the things that can be fashioned through the use of this medium, and all who have worked with me in this craft, enjoyed the results that they were able to attain, though they possessed no particular skill in it.

FIRST STEPS AND RULES IN SELECTING DESIGNS FOR COPPER WORK

The worker with the ability to originate an appropriate design can take care of himself. But the one who lacks this ability must adopt his design from the works of others. Suggestions for designs may be taken from carved ornaments, wall papers, printed fabrics, or even from the advertisements in newspapers and magazines. The worker should make his selection of the designs with an eye to: first, the effect that will ensue when the design is translated into metal relief; second, the fitness and the desirability of the design for the purpose in mind, and third, the correct size of the design so that it will be absolutely appropriate for the article for which it is intended.

This particular rule is very important, for neglecting to follow it, will result not only in the waste of copper, but of the time and effort as well.

Regardless of the simplicity of this craft, I would advise the beginner to start with a very simple design, free from intricate details, deferring the production of more elaborate work until his hand has acquired its cunning, and until he feels competent to deal with more elaborate work without risk of failure.

MATERIALS USED IN COPPER WORK

1. Soft copper, specially prepared for hand tooling.
2. A pad of thick felt or thick rubber.
3. A block of soft wood.
4. A piece of marble or glass in a size easy to handle.
5. A pair of hollow cut punchers for cutting holes.
6. Plaster of Paris.

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7. Liver of Sulphur.
8. Sandpaper.
9. Metal glue.
10. Metal varnish.
11. Nail file.
12. A small hammer.
13. A box of nails of various sizes.
14. An ice-pick.
15. A tape or an elastic band.
16. Modelling tools.

The materials listed above are generally used in connection with soft copper work; but, in the very beginning, the worker may find a nail file, a thick felt pad, a piece of square glass or marble, and, of course, a sheet of copper, sufficient for his needs.

TRACING DESIGNS

The nature of the soft copper is such that it is very pliable, and every single move can easily be registered on it; therefore the best way of transferring a design onto it is to do it with a nail-file, an ice-pick, or an orange-wood stick. The copper is laid wrong side up on the padding, and the design traced onto it with the nail-file, using enough pressure so that the lines of the design will show on the right side of the metal piece.

TRANSFERRING THE DESIGN ONTO METAL WITH A LINOLEUM BLOCK

The worker can cut the design on a linoleum block, spreading the sheet of soft copper over it. Then, by using a printing roller (a plain rubber roller), an impression of the design can be made.

The same method can be used in transferring the design onto a metal from embossed ornaments of different natures, such as, architectural designs, wood carvings of interior decorations, etc.

THE WORKING PROCESS

The working process consists of bringing up the relief work on the metal to its best clearness. Therefore the worker should take the sheet of soft copper, onto which the design has already been transferred, and, having laid it down wrongside up on a thick felt pad, follow the lines of the design with a nail file or ice-pick, using pressure, and thus deepening the lines up to 1-32 of an inch in order to accentuate the embossing.

Then the worker should turn the copper right side up and continue the relief work by drawing a second line of the design, about 1-16 or 1-8 of an inch from the first line, depending on the finesse of the work required. Then the copper should be placed on the glass or marble surface, the lines modelled up with the same tool, making the final embossed lines, and the background evened out, thus making the article ready for mounting onto the desired object.

Care should be taken to work very accurately, because, as I said before, the copper, being very pliable, responds to every touch of the tool. From time to time, the background needs to be flattened out, in order to obtain the best results.

I therefore recommend that the design be worked in parts, and not in its entirety, taking the copper from the felt padding and placing it on a glass or marble surface to flatten out the background. If the embossed lines are required to be brought up to a depth greater than 1-32 or 1-16 of an inch, it is recommended to place the copper on a softer padding than the thick felt, in which case, rubber padding should be used.

The above mentioned rules are very elementary, and by mastering them,—simple though they are,—the worker can achieve very beautiful and startling effects. And the design can be made even more attractive and increased in value, by painting the finished article with enamel of various colors provided it is sparingly used.

In embossing modernistic designs, which consist in many cases of straight lines, circles, and semi-circles, it is recommended to use special rulers, made in these shapes; but the rulers must be lined with rubber so that they will not skid on the metal while working. With the use of these rulers, and the nail file, embossing can be done in the previously explained manner. Modernistic designs are greatly employed in large pieces of decorative work, such as, window displays, ceiling and wall decorations in the lobbies of theatres, and fronts of stores. But, of course, this kind of work requires very broad outlines of the design, which can easily be made by deepening the lines, working on the right side of the copper and starting them away from the first lines—not 1-16 or 1-8 of an inch as explained previously, but a distance in proportion to the size of the design, making them as wide as necessary.

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PROTECTING THE OBJECT FROM ATMOSPHERIC INFLUENCES

In order to protect the ready made article from atmospheric influences, the worker should cover it up with metal varnish but it is best to varnish it after the objects have been mounted and the work entirely completed.

BACKGROUND WORK

In making trays, plates, etc., it is sometimes necessary to bring out the design by having raised background work with small indentations, which can be made by placing the copper on a padding wrong side up, and gently hammering it with a round pointed tool,—(not a sharp one)—thus producing an antique hammered effect, and setting off the design.

BENDING COPPER OBJECTS

The bending of copper objects should be done by hand or with the help of a ruler; and care should be taken to do it as carefully as possible, especially in bending articles that are round like plates or trays.

In making a plate or a tray, thick sheets of copper or copper that is not so pliable should be used. However, the worker is still taking a chance; for while bending the sides of the tray, he is likely to bend the bottom of it as well, thus putting it out of shape. To avoid this, a piece of heavy cardboard to fit the bottom of the tray should be prepared ahead of time, and placed securely while the bending of the side is done.

MINIATURE BAS-RELIEF WORK

In order to obtain the proper results in miniature work, it is recommended to use small tools, usually employed for work on silver; and, in doing the relief work, the worker should use a softer padding and use more pressure while working on the wrong side of the copper. But the lines drawn on the right side of the copper should be done alongside of the original ones drawn on the reverse side. In this way, the worker will obtain better and sharper relief lines.

In order to prevent the raised part from losing its shape, the worker should fill in the grooves of the design with plaster of paris.

This procedure is recommended in all work with soft copper.

FILLING IN PLASTER OF PARIS

Filling in with plaster of Paris must be done when the object is entirely finished and the background is worked in. The plaster of Paris in powder form is mixed with water and stirred thoroughly; and this soft mass is poured into the grooves of the finished object. Any little surplus of plaster of Paris when it is dry must be scraped away with a knife and, if necessary, smoothed with sandpaper so that the surface will be perfectly flat and smooth. Then to prevent the plaster of Paris from falling out when the object is turned over, a piece of paper must be pasted across the back of it.

CUTTING HOLES

Sometimes, in order to beautify the object, a number of stones in one color or in a harmony of colors may be set into the finished copper. For this, holes of various sizes, in accordance with the sizes of the stones must be punched into the copper. The holes can be punched with an ice-pick and then enlarged to the proper size by cutting with a pair of curved scissors; but it is really better to use hollow cut punchers which can be obtained in almost all the required sizes. In order to cut the hole properly, the object must be laid face down on a soft wooden block and the hole hammered out from the back in a size smaller than the stone, thus assuring a firmer grip and a more permanent hold on the stone.

A thin piece of cloth should be pasted over the back of the stone to keep it in place. In cutting holes, the worker should observe one very essential rule: a cut must have a smooth and clean-cut edge, and, therefore, it is recommended to smooth the edges with a file or to sandpaper them after cutting them. This rule is especially essential in cutting holes while inserting stones in brooches, rings, and other objects of similar nature.

ENAMEL PAINTING

Painting the design with enamel enhances the beauty of the object so much, that I am in great favor of it. However it should be used sparingly, as too much enamel color will detract from the essence of the copper work.

In order to obtain the maximum of permanency, it is best to burn the enamel into the copper with a blow-pipe or to bake it in a kiln; but this process of burning enamel into copper is quite

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a complicated one and very seldom used by amateurs, especially on the playgrounds or recreation centers. I shall therefore explain another and a simpler process: the method of applying enamel with a brush.

It is best to use transparent enamel which permits the color of the metal to shine through and adds life to the object. In order to apply the enamel onto the object, special raised or sunken partitions, 1-16 of an inch in depth, must be built up in the design. This can be done with the use of a nail-file, working either from the back or front of the object.

Before the enamel is applied the object must be thoroughly cleansed by dipping it in a bath of nitric acid solution. Due to the rapid action of the acid on the metal, dipping the object in the bath, must be done very quickly, and after that, the object should be rinsed thoroughly with clean water. Nitric acid solution removes all dirt from the metal and makes it bright.

The worker should not touch the parts of the object which will be filled with enamel with his fingers, and should let the object lie untouched until the moisture has evaporated. Then, when the metal is entirely dry, the enamel can be applied with a soft hair brush and left to dry.

OTHER WAYS OF TREATING COPPER OBJECTS

The articles may be given an oxidized finish if desired, by covering it with a solution of Liver of Sulphur. If it is desired to obtain a greenish color effect, the copper should be submitted to the fumes of spirits of ammonia.

FIGURE WORK

Due to the great demand for figure work in interior decorations, displays, and in advertising matter, it is important to develop draftsmanship in this particular field. It is very difficult however for a beginner to start to work with the feature lines of the full face, because of the pliability of copper, which responds to every single touch. I would advise the beginner not to attempt the feature lines of the full face until his hand is very sure, for it is almost impossible to correct mistakes. Not until the skill of the worker and his artistic ability to feel every single move of his hand are developed to such an extent that he can raise up the feature lines of the face without any risk of spoiling them, should he tackle the task of working out their desired expression.

THEREFORE, I WOULD SUGGEST THAT THE AMATEUR WORK OUT A FIGURE DESIGN, PREFERABLY IN PROFILE, BY SIMPLY OUTLINING THE HEAD, KEEPING THE DESIGN AS SIMPLE AS POSSIBLE BY USING ONLY SUCH LINES AS ARE ABSOLUTELY NECESSARY TO DEFINE THE VARIOUS DETAILS. He will find, too, that the block method of transferring the design, described previously, is the easiest and will give him the best results.

MOUNTING COPPER ONTO A METAL BASE

It is best to mount copper onto a metal base, using metal glue. However, it is also possible to use screws, though not so advisable because of the fact that this procedure often presents great difficulties, and requires special instruments.

The finished object should be trimmed in the required places, smoothened down, glued, and then tied to the base by means of tape or elastic bands to keep it in place. (Be sure to use a very strong glue). Tape or elastic bands should be left on for a period of at least twelve hours, and only then removed. The surplus glue is washed, and the article may then be treated to give the copper the desired finish, as previously explained.

MOUNTING ON WOOD AND COVERING BOXES

Mounting on wood is done by means of tacking the copper onto the wood with nails to match the metal, employing a nail driver. The less nails used, the finer the effect will be. The wood must be of the best kind, and absolutely dry, so that there will be no danger of its shrinking or of the copper becoming warped.

In covering boxes, frames, or any desired articles with copper ornamental work, GREAT CARE MUST BE TAKEN IN MEASURING THE ARTICLE TO BE COVERED. IT IS BEST TO MAKE A PAPER PATTERN OF THE ARTICLE, AND TO CUT THE COPPER ACCORDING TO ITS MEASUREMENTS. THIS PRECAUTION WILL ASSURE THE PROPER ADJUSTMENT OF THE COPPER TO THE ARTICLE. It is then trimmed with scissors, and nailed or glued with metal glue (in case it is too awkward to use nails.)

Corners and points are then smoothened down with a file if they are too sharp, the article is cleaned and treated against atmospheric influences.

EXAMPLE OF THE WORK

The illustration below shows miniature work of an ornamental design of a border, which can be used on a frame, or a box, or for general decorative work. Let us summarize all the details of the explained method of working with soft copper, and proceed to make this pattern.

This design is very effective; and, though complicated-looking, is easy to do. The worker can copy this design and trace it onto the copper with a nail file, placing the pattern flatly on the dull side of the metal sheet, which is laid over a felt padding. The corners should be held down by weights to prevent the pattern from moving.

After the tracing is done, the worker should deepen the lines with his nail file by using more pressure.

He should then turn the copper right side up and draw second lines right next to the previously drawn ones, and thus receive a deeper embossed effect.

When this is done, the metal should be taken from the padding and placed on a glass or piece of marble; and the design should be moulded so as to acquire the necessary bas-relief effect. The background is then flattened out with a soft instrument or a pallet knife.

Now, when all this is done, the article is placed on a wooden block and tiny holes are prepared for the nails. Then in order to assure the firmness of the bas-relief work, the embossed part should be filled in with a plaster of Paris paste, using a pallet knife. When dry, scrape off the surplus of the plaster of Paris with a knife, smooth it down with sand paper, so that the surface will be absolutely flat and level, and, to prevent the plaster of Paris from falling out, paste a piece of paper over it.

When all this is finished, the copper should be trimmed, cut to the size of the wooden frame, cleaned with nitric acid and fastened to the frame with nails; then it is covered with Liver of Sulphur and, when dry, varnished.

EXAMPLE OF A MORE COMPLICATED PIECE
OF WORK

The second illustration shows a design employing figure work. It can be successfully used for boxes, treasure chests, frames, and

EMBOSSSED SOFT, TIN COPPER WORK



ILLUSTRATION SHOWS AN ORNAMENTAL DESIGN FOR COPPER WORK.

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the center of the design for trays, plates, and all kinds of wall decorative articles. This design is more difficult to make, and requires more skill.

To simplify the translation of it onto the metal sheet, the worker should copy it onto a linoleum block and cut all the details out on it. Then place the metal sheet on the linoleum block, making the impression with a rubber roller and thus transferring the design on to the copper.

Then the copper should be placed on a rubber padding, right side down, and the lines deepened with a nail file by retracing them with more pressure.

Turning it right side up, draw the second lines next to the previously drawn ones, constantly consulting the original design, however, so that the lines will be properly worked out—especially in the figure work. Notice that the second lines are farther away from the first lines in some places than in others, and follow the design very strictly in this regard.

Then, placing the copper on the glass piece, mould it in the usual manner, and flatten the background.

To insert the stone, the copper sheet should be placed on the wooden block, and a hole, of a size smaller than the stone, should be cut with a hollow puncher. Tiny holes for nails should be prepared at the same time; and, to assure the firmness of the bas-relief work, the design should be filled in with plaster of Paris.

When all this is done, the surplus plaster of Paris is scraped off to assure the levelness and smoothness of the surface. The stone is then inserted; and, to prevent it from falling out, a piece of thin cloth is pasted over it, and the whole surface covered up with paper. The metal is cleaned, trimmed, cut to the size of the article, and fastened to it with nails, then covered with Liver of Sulphur, and varnished.

This craft has proved itself to be a very enjoyable and valuable one, not only to the various recreation centers to which it has been introduced, but to people, in all walks of life. The comparative ease and simplicity with which very attractive and useful articles can be made, make it an extremely favorite pastime.

EMBOSSSED SOFT, TIN COPPER WORK



PHOTOGRAPH SHOWING FIGURE WORK IN BAS-RELIEF ON COPPER.

CHAPTER FIVE

PYROGRAPHY OR PYROGRAVURE WORK AND PAINTING ON WOOD

PYROGRAPHY OR PYROGRAVURE WORK

This word, PYROGRAPHY, takes its derivation from two Greek words "PYRO," meaning "fire," and "GRAPHO," meaning "to write," in other words, "to write or to draw with fire."

This is a very interesting and fascinating craft, and has a great many followers among amateurs as well as professionals. Quite a number of wonderfully executed samples of this work have been exhibited.

Formerly, craftsmen in this field were compelled to work with a benzoine burner device and platinum needles, which presented the difficult problem of having to burn lines with the needle of a device that required particular skill in its handling in order to keep the steady temperature of the burning point. Sometimes, the needle, being very hot and pressed heavily, produced thick, ugly lines; and, at other times, failure to reach the proper temperature of the needle, resulted in the drawing of poor and ineffective lines. And, in an effort to correct them, the design would be entirely spoiled, and the worker, particularly if he was an amateur, would be very much discouraged.

At present, however, a number of electrical devices, with even and permanent temperature of the needle, have been invented, and are sold very inexpensively.

With these, the craft of pyrography has become a comparatively simple one. And due to the inexpensive materials used in connection with it, it can be enjoyed and very usefully developed in schools, recreation centers, playground fields, and in the home.

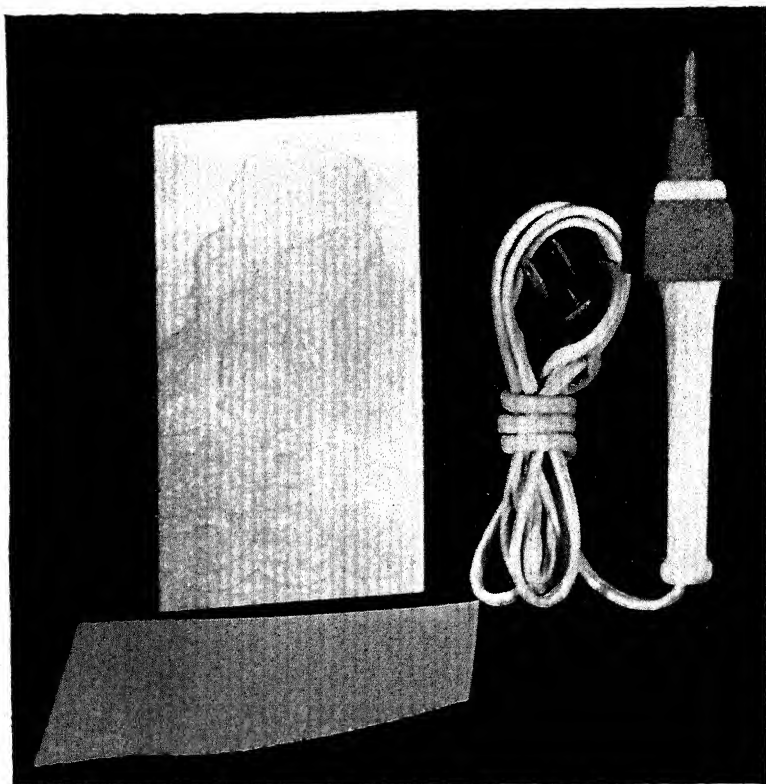
The companies manufacturing these devices also supply instructions as to their use. Therefore, I will only discuss those rules that are to be followed in the actual execution of this craft.

MATERIALS TO BE USED

The following is a list of tools and materials necessary for the execution of pyrography work.

1. Electrical device for burning lines.
2. Block of wood, or piece of leather.
3. Two Steel Gouges.
4. Chisel.
5. Sand paper.
6. Small Saw.

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Firmer Gauge Outside Ground



Socket Butt Closed



Firmer Gauge Inside Ground

PHOTOGRAPH SHOWING THE MATERIALS USED IN THE ART OF PYROGRAPHY.

SELECTING THE WOOD

It is very essential for the worker to procure the proper wood. It must be well seasoned and close grained, so that it will not warp, and should be free from any knots which may spoil the design or interfere with the easy and proper execution of the work. Chestnut, lime, or sycamore woods are the best to use; but a great number of works have been done on so-called three-ply wood, which is very easy to work with and is very adaptable for applique work in decorative objects.

FIRST STEPS

In preparing the material for work, the following rules should be observed:

1. The wood, before the design is stamped on it, should be sand-papered to absolute smoothness and levelness.
2. The burning should be started only when the point of the needle is red hot. I suggest that the beginner, before starting his design on wood or leather, practice on a piece of soft wood, experimenting and making lines in such a way that he will not make dark spots at the starting and finishing points. This is very essential, as the dark spots always mar the beauty and perfection of a design.

The worker should practice making lines until he is able to work with the device as if it were an ordinary pencil and until he is sure of the action of the needle.

Only then will he possess the skill and craftsmanship necessary to the art of pyrography.

3. Narrow lines are made with the point of the needle and wide lines with the side of the needle. Very little pressure is necessary to make impressions, and the lighter the touch, the finer the results. In spite of this lightness of touch, however, the worker must be conscious of a very definite control of the needle, and make very steady lines.

SHADING EFFECTS

In order to produce light shading effects, the worker should use quick, light strokes; and, in places where heavy shading is desired, the lines should be done with slow, pressureless strokes. Shading effects are used mostly for backgrounds, which bring out the design. Therefore, it is necessary that the worker learn to

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control the slow and fast movements of his hand, which will enable him to shade in gradation from the darkest to the lightest shades, and vice versa in accordance with the requirements of the design. In other words, THE MAKING OF EVEN LINES IS MOST ESSENTIAL; AND WHEN ACHIEVED, MANY BEAUTIFUL ARTICLES CAN BE MADE, AS THE REST OF THE WORK IS VERY EASY.

STAMPING THE DESIGN

The design can be stamped on the wood or leather with a perforated pattern, using stamping powder. It can also be traced onto it with carbon paper, or sketched on with a pencil.

CURVED LINES

In making figure or flower patterns, special care should be taken to use as little pressure as possible, drawing the lines with fast, but steady strokes. These designs often consist of many curved lines, which are difficult to execute and require a skillful hand. Short curves should be done with one light stroke. The longer curves may be done with two or more light strokes; but it is preferable to do them with one, moving the wood in such a way that it is unnecessary to lift the needle. This procedure will avoid the possibility of spots that often show when two lines are made to meet.

BACKGROUND WORK

Backgrounds on wood, as well as on leather, can be shaded with straight or cross-way lines—or with dots. The application of these lines should be done in the manner previously explained; but the dots must be executed with a very quick touch of the point of the needle to the wood, moving it away with a quick upward jerk.

FINISHING THE ARTICLE

To finish the article, it may be painted with oil color or with aniline dyes soluble in water, in spots or in the background also; and when dry, shellacked and polished with wax. Sometimes, to bring more gloss and shine to it, the finished article is treated with celluloid solution. This solution may be prepared by the worker himself, with 20 parts of Acetone, 20 parts of amile acetate and 3 parts of celluloid, measuring them by weight. The Acetone and

PYROGRAPHY, PAINTING ON WOOD



A PHOTOGRAPH OF A SHIELD, MADE OF THREE-PLY WOOD WITH
THE DESIGN OF A GUARDSMAN EXECUTED IN PYROGRAPHY.

PYROGRAPHY, PAINTING ON WOOD



PHOTOGRAPH OF A SHIELD, MADE OF THREE-PLY WOOD, WITH THE DESIGN OF A YOUNG GIRL EXECUTED IN PYROGRAPHY—A COMPANION PIECE TO THE PREVIOUS DESIGN.

Amile Acetate are put in a glass container, the celluloid placed in the solution, and the container sealed tightly with a glass stopper. When the celluloid is dissolved, the mixture is ready for use, and can be applied to the wood with a stiff brush. This gives the wood a very glossy coating. If desired, a few coats of this liquid may be applied.

EXAMPLE OF THE WORK

The illustration below shows a simple shield, decorated effectively with the design of a guardsman, using three-ply wood. To make it, trace the shape of the shield onto the block of wood, and, with a small saw, proceed to cut it to this shape. Now sand-paper it to a very smooth surface, and trace the rest of the design on it.

In order to facilitate the work, the border lines of the design may be emphasized by gouging them lightly with a $\frac{3}{8}$ of an inch steel gouge. The same thing may be done with the deep, broad lines that are in the puffs of his costume, and in spaces where the dark shading effects are required for the hat.

The block is now ready for the burning process, which should not be begun until the point of the needle is red hot. The flower lines are very short, therefore easy to burn, using the point of the needle, and making light strokes. The lines that are to be emphasized are worked out with the side of the needle. The features of the face are done with short and quick strokes. The details of the plume are executed from the top to the bottom, using the point of the needle, and repeating the lines with fast, short movements, gradually slowing them down at the end to make them darker and heavier. In making the curls, the worker should work from the bottom to the top, making two short, fast, strokes one following the other.

He should never attempt to make them in one stroke, with a slow, round movement.

In making the hat, the dark shading effect should be done with short, slow, and pressureless strokes. The hands, done with the point of the needle, should also be executed with very light, pressureless strokes, and the pupils of the eyes burned in with a quick, light, jabbing stroke, permitting the point of the needle to barely touch the wood.

When all this is done, the design may be painted in accordance with the rules explained further on in the paragraph on Painting on Wood.

The costume may be painted in any color desired, and the

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background and border done in a darker color. Then, when dry, it is shellacked and polished, and the article is finished.

The second illustration shows a shield with the design of a young girl on it, and will make a suitable companion piece to the first one. They will provide a pair of very fine wall decorations.

DECORATING READY MADE FURNITURE

Unpainted furniture very often can be attractively finished by covering it with decorated panels of three-ply wood.

If the worker desires to have a writing desk like the one illustrated in the picture below, let him procure one, without a cover, and proceed to fashion one for it in the following way.

Two pieces of three-ply wood are glued together, one on top of the other, and cut to the right size, to fit the desk, and smoothed with sand-paper. The design, is then traced and burned on. To emphasize some of the places in the background, the lines may be cut with a gouge and a chisel, and burned in with short, slow strokes using the side of the needle.

The border can be made out of strips of soft wood, cut to the proper size. The design is burned in, and the strips are nailed or glued to the three-ply wood, enclosing the design in a frame.

The frame is then attached to the desk with two hinges; and, if desired, a lock can be inserted, thus finishing the top of the desk.

The drawer is convex, and can also be covered with three-ply wood. Measure the front of the drawer carefully; and, allowing about two inches for bending, cut the wood to this size, using the full length of the drawer, and place it into a steam chamber for several hours until it is soft enough to bend. Then, holding the wood close to the drawer, shape it accordingly, and bind it tightly with a strong cord, leaving it on to dry until it has assumed the desired shape. When thoroughly dry, remove and smoothen it with sand-paper, trace the design on it, burn the lines in, and trim to the exact size of the drawer. Then glue it to the drawer with a strong glue, after which the whole desk is painted with oil paint and polished.

APPLIQUE WORK

Another effective use of three-ply wood is illustrated in the applique work of the chair.

Take two panels of three-ply wood and cut them with a saw to the shape of the seat and the back of the chair.

Smoothen them with sand-paper, trace the designs, burn the lines, and, drilling a hole into the spaces to be cut out, insert a small saw, and proceed to shape the applique work of the design.

When all this is completed, the two panels can be glued to the chair with a strong glue, the actual chair forming a background for the pattern that has been cut out. This background may be treated with the regular strokes used in pyrographic backgrounds, and the whole combination produce the effect of carved wood.

When all this is done, the chair should be painted with oil paint to match the writing desk, and polished.

Furniture decorated in this way can be given antique finish, which is very beautiful and decorative.

In making the bellows, follow the directions given for the making of the chair.

SUGGESTIONS ON HOW TO MAKE A WALL PANEL

The following illustration shows a very decorative panel, which can be installed in any home; and wall panels, made in this way, are very effective and rich-looking.

This particular design is easy to make.

Cut a piece of three-ply wood to the size of the wall space, smooth it down with sand-paper and trace the design onto it. In executing the design, it is not necessary to use a gouge or a chisel. The lines of the design are simply burned with light, pressureless strokes; and only in doing the trunks of the trees, should the worker use the side of the needle. Where the effect of the light should be brought out, the worker may use slow strokes, working with the point of the needle and using no pressure.

The stems of the water-lilies must also be worked with the point of the needle, and in very light strokes. The background is done with single, light and quickly drawn lines, and the figure design and the feature lines of the face are very easy to do, using light, pressureless strokes with the point of the needle.

This illustration plainly shows all the details of the work; and if the worker will follow the general rules of the art of pyrography, he can easily duplicate the design. However, I would suggest working the design out in parts, making various sections of it

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on small pieces of three-ply wood, so as to acquire the assurance of the necessary technique, and to be able to figure out the best way of handling the needle.

After the lines have been burned, the design can be painted effectively with water color dye, the swans and the lilies being done in zinc white. Then a frame for the panel is cut from the three-ply wood, decorated in the same manner, and glued to the finished panel. The whole thing is then shellacked and polished, after which it is ready to be hung.

MAKING A TRAY

Decorated wooden trays are very effective when used as wall ornaments. The following illustration shows a wooden tray with the design of a monk on it. Though seemingly complicated, it is really very easy to make.

Take an unfinished tray made of soft wood, and make sure that it has no knots, is well seasoned, and close grained. Sand-paper it to a very smooth finish, and trace the design on it. Several lines of the design should be cut carefully with a gouge and burned with the side of the needle in small, pressureless strokes in order to bring out the light effects, and to facilitate the problem of working out the details of the costume.

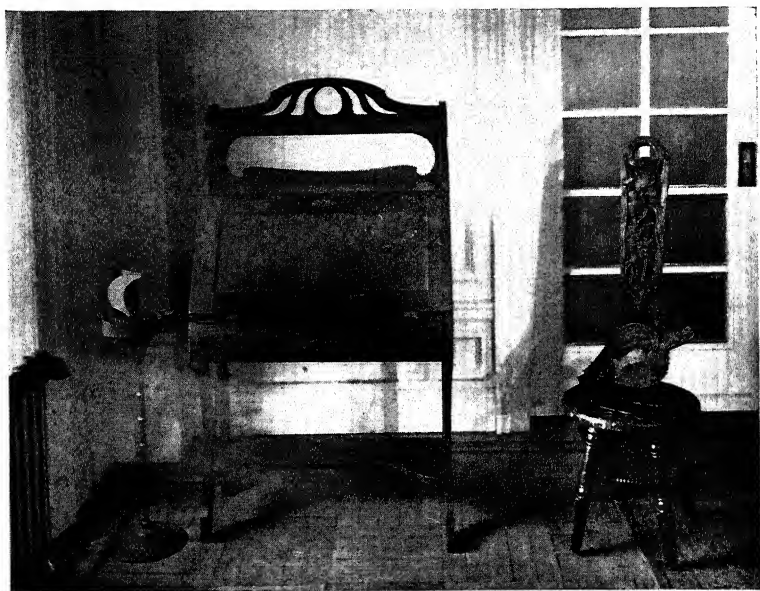
The lines to be gouged are: the three heavy, emphasized lines on the head of the monk, all the folds in the cowl, the jaw line, the folds of the sleeves and of the front part of the costume, as well as the emphasized lines of the cuffs.

All these lines are then burned, with slow, pressureless strokes, using the side of the needle.

The rest of the design must be worked out with very light, pressureless strokes, using the point of the needle. Special care should be taken by the worker while burning the feature lines of the face, the pupils of the eyes, the nostrils, and the details of the ear.

Finish the edge of the tray with dotted lines, making the dots with slow, jabbing motions of the point of the needle. When all the lines of the design have been burned, the back-ground should be worked in with very light strokes. Then the details of the face can be painted in, using water color dye or oil colors of a light brown shade, and applying them with very delicate strokes, using a fine, round-pointed sable brush. Then the article is shellacked and polished; or, if antiquing is desired, it may be antiqued with the brown dye before being shellacked and polished.

PYROGRAPHY, PAINTING ON WOOD



A PHOTOGRAPH SHOWING A WRITING DESK DECORATED IN PYROGRAPHY, A CHAIR AND BELLOWS DECORATED WITH APPLIQUE WORK AND PYROGRAPHY—(all done with the aid of three-ply wood)—AND AN ASH TRAY MADE OF SOFT COPPER AND MOUNTED ONTO A METAL BASE.

PYROGRAPHY, PAINTING ON WOOD



PHOTOGRAPH SHOWING A WALL PANEL DESIGN EXECUTED IN
PYROGRAPHY ON THREE-PLY WOOD.

ENHANCING WOOD WITH COLORS

Combining pyrography with the art of painting on wood makes for very beautiful and gratifying results. Either water color dyes or oil colors may be used for this purpose, oil colors being easier to use. However, wood absorbs dye very rapidly, and therefore takes an even coating of paint with ease. The burned lines, acting as resisting agent lines, do not let one color spread into one another.

Therefore, several spaces can be painted at the same time without any fear of smearing the colors.

Shading effects can be produced in the same way as on textiles, simply by applying one color after another and then washing the colors together with a wet brush on the adjoining line. But it is easier to produce shading effects, by moistening the wood with plain water before applying the colors, painting over a wet surface. This procedure helps to blend the shades evenly.

In covering small spaces, the brush should contain only a small amount of paint, and should be handled with care so as not to smudge the rest of the article. Do not hold the object vertically while painting. When using water color dye, white spots should be done with zinc white. When all painting is finished, and the article is perfectly dry, the entire surface of wood should be shellacked and polished with a wax polish. This will give the article a better finish and preserve the work.

The following illustration shows a wooden egg attached to a tray. The design on the tray is worked out in miniature lines, and can be executed very easily. The egg, hollow inside, opens in two, and is attached to the tray by a screw from the inside. The ornamental design on the vertical band of the egg is done with short, light strokes, and the edge of the band is burned with small dots. The outlines of the young lady are burned with very light, pressureless strokes, and then the rest of the details, are painted with "Kraflrite" water color dyes, with the exception of the girl's head-dress and her neckline, which are done with zinc white.

This design which is very easy to carry out, requires only the patience and careful attention of the worker.

When finally painted, shellacked and polished, it is an admirable piece of work, and can be used as a candy dish, a jewelry box, or any decorative piece.

CHAPTER FIVE

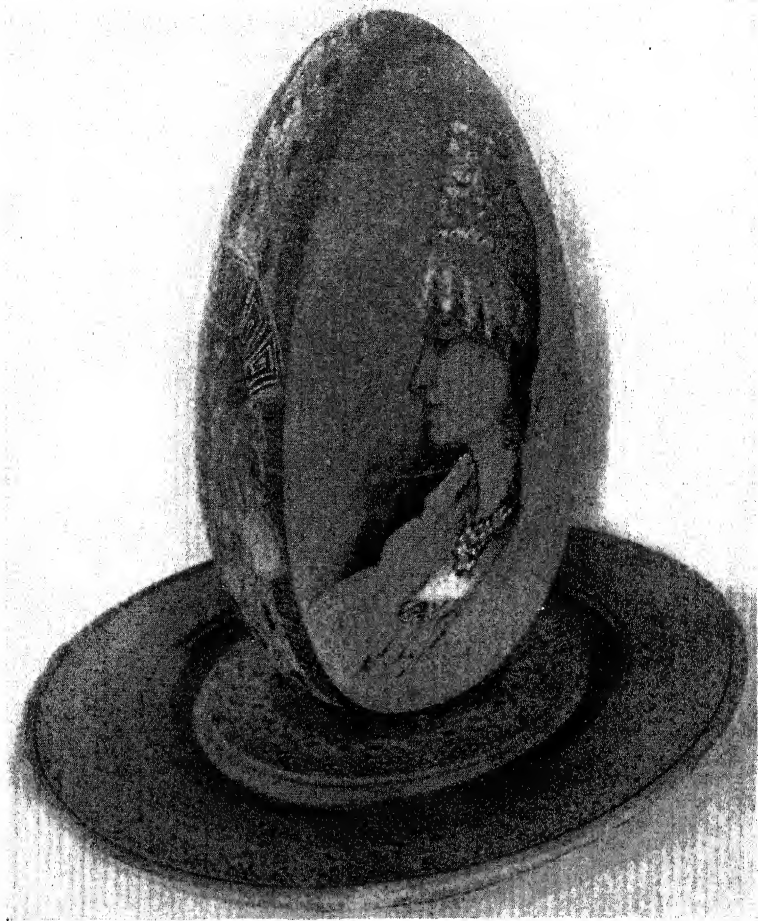
In closing this chapter on the art of pyrography and painting on wood, I wish to say that, with a little practice, the skill necessary to this craft can be easily attained. Such articles as: wall panels, furniture sets, utility boxes, decorated waste baskets, magazine racks, shelves, lamp bases, serving trays, plates, book-covers, picture frames, etc. etc. are only a few of the useful things that I have seen made. They all have commercial value, and can therefore be utilized by the worker not only for the sake of his own pleasure, but also as a source of additional income.

PYROGRAPHY, PAINTING ON WOOD



PHOTOGRAPH OF A TRAY MADE OF SOFT WOOD WITH THE DESIGN
OF A MONK EXECUTED IN PYROGRAPHY.

PYROGRAPHY, PAINTING ON WOOD



PHOTOGRAPH SHOWING A WOODEN EGG AND A TRAY EXECUTED
IN PYROGRAPHY ON SOFT WOOD AND PAINTED WITH
WATER COLOR DYE.

CHAPTER SIX

THE ART OF MAKING DOLLS AND MARIONETTES AND THEIR MANIPULATION

THE ART OF MAKING DOLLS AND MARIONETTES

The art of making dolls and marionettes is a very fascinating and valuable one, not only for the pleasure derived from it, but also for the educational benefits attained. Quite a number of educators have successfully defended the idea that the habits and customs of the different countries of the world can be taught better through the medium of dolls than through that of text books or pictures.

The craft of making marionettes for school purposes not only helps children grasp their study of geography, without effort but also amuses them, and helps them develop their art sense. Therefore, the board of education in many states, included the art of making dolls and marionettes in their curriculums, and special classes were established to teach this craft to children, as well as to grown-ups.

The public libraries and museums are full of prints and models from which ideas and details of costume can be copied. These have been used with telling effect by very many groups of people interested in the production of marionette shows.

The marionettes, when made by deft fingers, and controlled by a person experienced in the manipulation of their strings, can transport an audience into a fairy-like reality, where the incomparable charm and the grace of the dance, can find full expression.

I witnessed a "Miracle Play" staged in Berlin on a miniature stage, with marionettes as actors. The play was so marvelously done, the movements of every actor and actress so perfectly controlled, that I had the impression that I was witnessing a real play.

This made me realize the great possibilities that exist in the production of marionette shows, and induced me to do all I could to further their vogue. The greatest achievement in this field so far has been the marionette play, "GULLIVER'S TRAVELS", produced on the talking screen by the "Moscow Film Studio," through the kind permission of whose representative in this country one of its puppets is herewith reproduced.

There are three kinds of marionettes. The first, and simplest is the plain doll, that is not operated for action, but used for stationary actors or silhouettes. The second group consists of marionettes with movable joints made to fit on and operated by the fingers of the hand. And the third group, the most common in use, consist of moving, walking marionettes, operated with rods and strings, enabling them to bow, gesticulate with their hands, dance, etc., etc. In other words, they are full-fledged actors.

THE PROCESS OF MAKING MARIONETTES

Marionettes very often are made out of wood; but they require great skill in carving and carpentry, which skill is very difficult for the amateur to master. Also, the schools, playgrounds and recreation centers do not always have the necessary instruments with which to make these marionettes.

The best thing to do, therefore, is to construct them out of paper.

If made well, they will be just as serviceable as the wooden ones. The principal thing to remember in the execution of the work is that the dolls must be made in such a way that every member of the body will be perfectly loose and its movement easily controlled by the string attached to the controlling rod.

Dresses and costumes must be made to fit loosely, permitting absolute freedom of movement of head, arms, legs, and torso, and should not be put on the marionette until all wires for strings have been attached. The colors of the costumes should be chosen with an eye to footlights and spotlight effects.

FIRST STEPS IN THE MAKING OF A MARIONETTE

Making a mould.

There is a great field for the talented amateur in the preparation of a mould for the head of a marionette as he will have the opportunity of bringing out its character while moulding it. But for an amateur who does not know how to draw, and has never had the experience of painting details of the feature lines of the face, prints and the models of various marionettes can be used as guides.

The outlines of the marionettes can be traced from the print and retraced on a piece of cardboard, and cut out. If it is desired to make the size of the marionette larger, it can be done with the help of a pantograph, and then retraced onto the cardboard and cut out. This cardboard can be laid on the moulding clay and serve as a guide in shaping the figure; that is, if the worker is making a mould for a stationary marionette. But in making a movable marionette, every part of the figure must be moulded separately. The head should be done first.

The following illustrations show the progressive steps in the development of the moulding of a head. Measure the circumference of the head, and mould a piece of modelling clay to this size, in the shape of an egg, following the general rule for proportions; the width (distance from ear to ear) is half the length (distance from top of head to tip of chin), and the depth (distance from nose to back of head) is anywhere from three-quarters of

an inch to one inch less than the width. For example, if the head is six inches tall, the width of the egg shaped model is three inches, and the depth, two or two and a quarter inches. This is the guiding rule for starting the head of a clay model; and, of course, can be made larger or smaller, provided all the measurements are larger or smaller in proportion. If the head is six inches tall, the sockets of the eyes should be two and a half inches down from the top of the head. The nose is made of another piece of clay which is stuck onto the head in its proper place between the eye sockets, and modelled to its proper shape and size. The eyebrows are also moulded up. The cheek bones are worked out by raising them, working with the fingers. Then, the lips can be worked out with an orange-wood stick, at a distance half-way between the nose and the chin. The chin and the other details are then worked out, in accordance with the specifications of the print; and the whole is then moulded to the final shape by rounding it well at the back of the head and smoothing down the forehead and the front surface of the face.

If the effect of wrinkled skin is desired, the texture of the front of the head should be left more or less rough, and special lines, indicating wrinkles, should be inserted with an orange-wood stick.

PREPARATION OF THE CAST

When the head is finished, it is cut in half with a sharp knife, cutting it in the center from ear to ear. This must be done very carefully, since the moulding clay is non-hardening, and the worker can easily misshape the head while cutting it.

After cutting, both parts of the heads should be placed on a deep, round plate, flat side down, and slightly pressed to the plate so that nothing can go under these parts; then they are corrected, shaped and once more smoothed down with the fingers in case the shape was injured while cutting.

A thin paste of plaster of Paris should be prepared in a reasonable amount. I advise preparing more of this paste than is needed and having some left over, than not having enough of it. It is very easy to prepare this paste by just mixing the powder of plaster of Paris thoroughly with cold water. For a thin paste, more water is used.

It should be poured gently over the moulded parts to cover them entirely, and as thickly as possible, especially covering the raised parts of the head, like the nose, etc. The more thickly they are

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covered, the better the cast will be. Then the plaster of Paris is left to dry and harden. It can sometimes dry in two hours, depending upon the weather. When the paste is dry and hard, the moulded parts should be lifted off the plate, and clay dug out of the cast gently and carefully, in such a way as not to injure the shape of the raised parts. After that, the casts are ready for making a mask, and can be used again and again.

PREPARATION OF THE CHIN

In case a movable chin is desired, it will have to be cut off the head, and separate casts made for head and chin, following the same method of procedure as explained above.

MAKING A CAST FOR THE BODY

The different parts of the body (arms and legs, etc.), can be shaped in clay according to the design of the print. The moulded parts should be cut in half, cutting them lengthwise on the side, and the casts made with plaster of Paris in the manner explained above.

However, there is a simpler way of making the rest of the body, which does not necessitate the making of casts. The different parts of the body can be made out of plain paper or a papier-mache, which process will be explained in this chapter a little further on.

THE FINAL HEAD

The plaster of Paris cast should be shellacked inside and, when dry, covered with oil or lard.

A special paste of flour and water can be prepared, but it is better to use gum tragacanth prepared in the following way: two teaspoons of gum tragacanth should be dissolved with three tablespoons of hot water in a cup, and stirring it constantly more hot water should be added to it gradually until the cup is full.

Then left to stay overnight, the gum tragacanth will thicken and provide a very fine and effective paste, without any lumps, particularly suited to this type of work.

But if the worker is not able to secure the powder of gum tragacanth, he can use any kind of mucilage. Saturate a piece of closely woven cheesecloth thoroughly with the paste or mucilage and carefully insert it in the cast, lightly pressing it down, and

MAKING DOLLS AND MARIONETTES

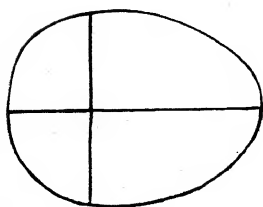
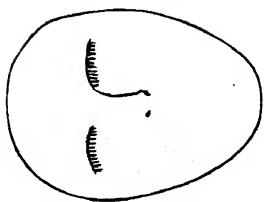
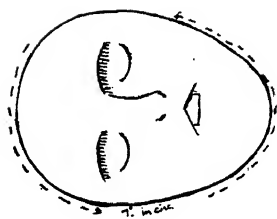
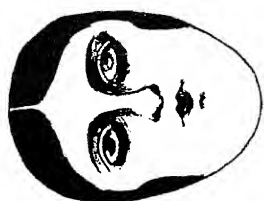


ILLUSTRATION OF DRAWINGS SHOWING THE PROGRESSIVE STEPS IN THE MOULDING OF A HEAD.

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avoiding all unnecessary creases. Then, cut narrow strips of newspaper or any kind of thin paper and saturate them with the paste or mucilage. Insert them carefully into the cast, covering every space of the cloth, and laying the strips closely, one after another, across the cast horizontally. The second layer is laid perpendicularly to the first one, each strip close to the next, and so on until four or six layers have been inserted into the cast, and then left to dry overnight. The same process should be repeated with the cast for the back of the head. When both are dry, the cheesecloth, filled with paper strips, can easily be removed from the casts. But care must be taken to remove them gently. They are then sewn, or glued together, making the complete head for the marionette. Tiny holes through which a piece of wire may be inserted, are pierced into the sides of the head back of the ears so as to permit the strings to be attached to it.

Then the details of the face can be painted in, using a water color dye, and the head is ready. The neck can be made out of wire or paper; but I recommend moulding the neck together with the head. It is not very difficult, and might as well be done at the same time. However, it should be finished at the bottom in the form of a triangle, and be a little longer than the specifications of the design call for. In this way, the neck can be loosely attached to the body, and have all the freedom necessary for its proper manipulations.

MAKING A STATIONARY MARIONETTE

To make the cast for a stationary marionette, trace the figure, excluding the arms and feet on cardboard, and cut it out. Laying the silhouette over the mass of clay, use it as a guide to mould the body, and then cut it in half on the side. Repeating the process used in making the mask for the head, lay these parts on a deep plate, flat side down, and gently but thickly cover them with a thin paste of plaster of Paris. When the paste is dry and hard, the moulding clay should be removed from the casts, and the inside of the casts covered with lard or oil. Then cheesecloth, saturated with glue or paste, should carefully be inserted and covered up with the glued strips of paper or papier-mache. When dry, remove them from the casts, and sew or glue them together. Then proceed to make the arms and feet in the same way, and when finished, sew or glue them securely to the body. However, weight the feet first with lead, stone, or sand, in order to assure the equilibrium of the marionette.

MAKING DOLLS AND MARIONETTES



PHOTOGRAPH OF A MARIONETTE.
Partly strung and with a separate, movable chin.

PREPARATION OF PAPIER-MACHE PASTE

Papier-mache paste, is made by cutting newspaper or very thin paper (tissue paper is excellent for this purpose), into strips $1/32$ of an inch in width, wetting them and crushing them on a plate. Use a spoon or, if convenient, the hands, until a solid mass is formed; or boil the strips to a mass consistency. Then squeeze out the water, and stir it into a glue mixture or a paste until well mixed. This paper glue mixture is called papier-mache PASTE.

THE USE OF PAPIER-MACHE PASTE IN THE MAKING OF MARIONETTES

Marionettes are often made out of papier-mache paste, which process eliminates the need of constructing casts for them. Handle the papier-mache paste as if it were moulding clay, and make the marionette in the same way, constructing it in its entirety if it is to be a stationary one, and in parts if it is to be of the flexible or movable variety. When dry, smooth it off with sandpaper, paint the head and hands with oil or water colors, and then shellac.

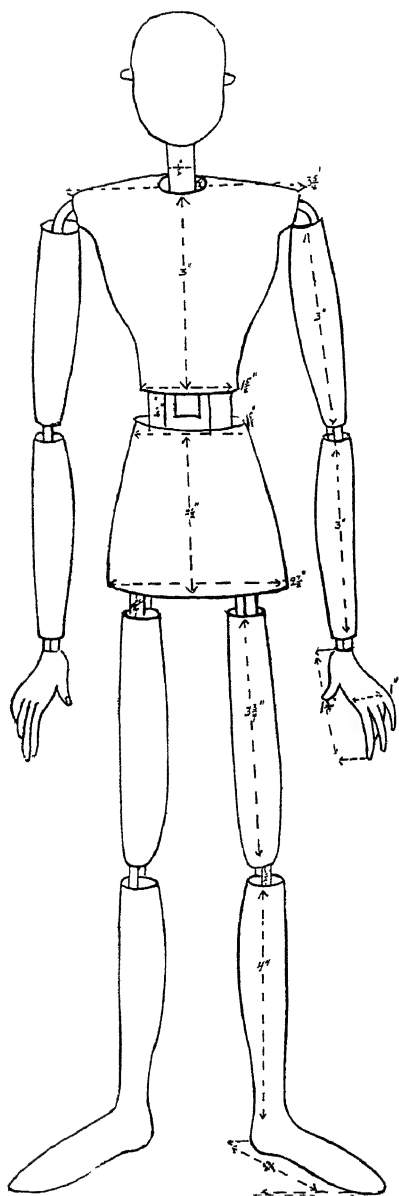
THE MAKING OF MARIONETTE BODIES FROM PAPER

It is advisable to use papier-mache paste in the making of stationary marionettes, including the head, arms, and legs of movable marionettes that are operated either by hand or by strings. But for the body of these movable marionettes, I would advise the use of heavy paper.

In order to facilitate the task of the worker, let me refer him to the skeleton of a marionette, eighteen inches high. As the drawing of the skeleton shows, the UPPER PART OF THE TRUNK (distance from shoulders to waist line) is three inches high, while the distance from shoulder to shoulder measures three and five-eighths inches.

Take three or four layers of wrapping paper, seven inches long and four inches wide and glue them together, one on top of the other. When dry, bend them in half, thus making a rectangle, three and a half inches by four, and shape it up on the sides by cutting the shoulder curve and gradually cutting it away to a triangular shape, the bottom of which, as the illustration of the skeleton shows, measures one and five-eighths inches across. But do not cut away from the height, as the extra half inch will be taken up by stuffing and the necessary bending.

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DRAWING OF THE PAPER
SKELETON OF A MARION-
ETTE IN ACTUAL SIZE, WITH
THE SIZE OF EACH PART
INDICATED.

MAKING DOLLS AND MARIONETTES

Then, right in the middle of the shoulder line, a circular hole seven-eighths of an inch in diameter, should be cut either with scissors or a sharp knife, to permit the loose insertion of the neck. Now seal the two folds of the paper with gummed tape, closing the sides, and leaving the neck hole, and the shoulder sockets open. Stuff it with soft paper or rags, and the upper part of the marionette's trunk is completed.

To make THE LOWER PART OF THE TRUNK, again take three or four sheets of wrapping paper, glue them together, and cut them to a rectangular shape, measuring six inches by three.

The height of the lower part of the trunk is two and a half inches and the width of the bottom (distance from hip to hip) is two and seven-eighths inches.

When the glued wrapping paper is dry, bend it in half, thus making a square, three by three inches. Cut the square to the shape indicated by the skeleton, trimming it so that the open and upper end will measure one and five-eighths inches across, and the lower two and seven-eighths inches. This should then be trimmed, rounded on the sides with scissors, and little circles cut in the places indicated by the skeleton, for the easy fit of the legs. It is then sealed on the sides with gummed paper, and stuffed with soft paper or rags, thus finishing the lower part of the marionette's trunk.

ARMS

Arms can be made out of mailing tubes or cardboard tubes, about half to five-eighths of an inch in diameter. Four tubes, three inches in length, should be used: two for the upper parts of the arms and the other two for the lower parts.

MAKING THE HANDS

Hands can be made in several ways; they can be moulded out of papier-mache paste, or made from plaster of Paris casts as explained previously in the making of heads, or they can be made out of soft or crepe paper, three or four layers of which, (two by one and one-quarter inches in size), can be glued together and, while still moist, shaped to form the hand, cutting four slits to make the fingers. The hands should be one and three-quarters inches long and one inch wide, and made so that they will fit into the tubes of the lower parts of the arms, and when dry, can easily be glued in.

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Crepe or soft paper, saturated with glue, being very easily shaped, the hands can be worked out in minute details, by using a sharp knife, a nail file, and a shoe horn, and when dry, tinting them to the proper shades. Trace the hand on a piece of cardboard, cut it out, and place the saturated, with glue crepe paper over it, shaping it in accordance with its lines. Then, while still moist, shape the fingers and work in the details of the nails with a nail file, rounding the back of the hand by placing and pressing it onto the concave surface of the shoe-horn. Then, turning it over and placing the palm of the hand on the shoe-horn's convex surface, work in the details on the back of the hand, with the nail file. The palm of the hand can also be worked out in detail by placing the back of the hand on the concave surface, deepening or raising the necessary parts of the palm, with a nail file or a knife, thus finishing the hand in all its details.

MAKING THE LEGS

Legs can also be made out of mailing tubes or rolled up cardboard paper. The thighs or upper parts should be three and three-quarter inches long, and the lower parts, four inches long.

The feet are made by shaping a piece of cardboard to the necessary dimensions, weighting them with a piece of lead or a flat sand-bag and covering them with soft paper saturated with glue. They are then attached to the legs with wire or with strips of gummed paper.

If the marionette is required to have bare feet, they can be covered up with a piece of cheesecloth or rayon, also saturated with glue; and, while moist, the toes can be worked out with a nail file, and, when dry, painted, to make them stand out. If the feet are not to be bare, glue heel pads onto them and paint them the necessary color of the shoes.

CONNECTING THE PARTS

When all the parts of the body are finished, they should be connected loosely, but firmly, with narrow strips of gummed cotton tape or adhesive tape. Two strips of tape are pasted parallel to each other on the front and back of the parts to be connected, leaving a distance of about half an inch between them. Be sure to cover the gummed side of the tape between the parts with paper, so that they will not stick together when the marionette

MAKING DOLLS AND MARIONETTES



PHOTOGRAPH OF A COMPLETELY DRESSED MARIONETTE WITH THE STRINGS ATTACHED.

is put in motion, and be sure to make the back strips of the arms and the front strips of the legs, a little longer in order to permit the free movement of these parts. Then, in order to make these strips stay firmly, paste a second strip cross-wise over the ends on top and bottom.

Now attach the head of the marionette to the body by inserting the neck into the hole already cut for that purpose, and secure it firmly but loosely with a piece of wire or gummed cotton tape, so as to permit its free movement.

It is possible to get even greater freedom of movement of the head by using pieces of cotton elastic tape about half an inch long, and about an eighth of an inch wide between the pieces of gummed cotton tape.

After all the parts of the marionette are connected together, it should be given a few coats of shellac; and the strings to control the movements of the marionette should be inserted. In case rigidity of certain parts of the body of the marionette is desired, these parts can be covered up with a few rows of gummed paper strips, and then shellacked.

On the other hand, if the marionette is supposed to be able to kneel, the distance between the lower and upper parts of the legs should be a little more than half an inch, and the back of the tubes behind this loose "knee" should be cut away obliquely so as to permit the necessary bending.

If the marionette has a separate chin, attach it to the head with two wires, one on each side of the chin, and connect them to the wire above the ears joining them inside of the head.

ATTACHING THE STRINGS TO THE MARIONETTE

All action and movements of the marionette are controlled by strings which are attached to the body after it is dressed. However, the wire loops which hold the strings, must be inserted into the body in the proper places before the marionette is dressed.

The number of the loops that should be attached to the marionette depends upon its character and the movements through which it will have to be put. It is therefore up to the worker to decide how many of these loops are necessary.

A marionette must have at least seven strings to move all its parts. There must be two head strings, which are the controlling strings, one back string, two hand strings, and two leg strings. The

loops for these strings are set in the following way: a piece of wire is inserted in the hole especially made for it in the head, close to the ears, and little loops made on each side of the head, as close to it as possible. Then three loops, placed triangularly very close to one another, and in a horizontal position, are inserted into the center of the upper back, one loop for the back string, and the other two loops for the leg strings to pass through. (These last two loops are not always used). Two tiny wire loops are inserted, one on the upper part of each hand, for the hand strings. (Some people do not insert these wire loops on the hands, but just run a thread through them with a needle, securing it by making a knot in the palm of the hand. However, loops make a much neater job). Then two wire loops are inserted in the back of each of the lower legs about an inch below the knee, and provide for the leg strings.

In case the operation of the lower part of the jaw is required, a tiny screw, with a loop, should be inserted underneath the chin, and the string, attached to this loop, should be passed through the head to the back of the neck, with a long needle. If shoulder strings are to be used, two wire loops are inserted, one on each shoulder.

When all the wire loops are inserted, the marionette should be dressed. I suggest sewing the dress right on to the marionette, always making sure that freedom of movement is not interfered with. Holes must be cut in the dress in all places where loops are located to permit the strings to pass through them. (I recommend the overhanding of the holes to prevent the material from ravelling and to keep it from catching on to the strings).

It is best to use waxed linen strings with which to string the marionettes; and the length of the strings depends upon the distance from the operating platform to the stage floor, and also upon the worker's individual needs, so far as convenience and ease of operation are concerned. Therefore, the length of the strings should be decided upon by the worker himself; but, he should cut them all in equal lengths before tying them onto the wire loops, and then, measuring them while the marionette is in a standing position with hands down, gradually adjust them to the wooden bars with an eye to: 1. THE EASE OF EXAGGERATING THE MOVEMENTS OF THE MARIONETTE; 2. THE RESPONSE TO THE ACTION OF THE CONTROLLING BAR, IN MAKING THE MARIONETTE BOW AND KNEEL; and 3. THE RESPONSE TO THE PULLING ACTION OF THE SMALLER, OR LEG BAR.

THE ART OF MANIPULATING A MARIONETTE

The action of the marionette is controlled by two wooden bars, one of which is called the controlling bar. Wooden bars can be made out of three-ply wood, from two to three inches wide. The length of these bars depends upon the number of strings to be attached. Their usual size is from five to nine inches in length. The controlling bar, to which the main strings of the marionette are attached, consist of two wooden bars fastened together, one on top of the other. The one that is placed on the top is from two to three inches shorter than the one that is underneath. The shorter bar is nailed firmly in the center to the longer one cross-wise at a point one-third from the end of the long bar, and a leather strap is attached to the center of the short bar to form a loop through which the hand is passed. In order to attach the strings to the controlling bar, let the worker refer to the illustration above. He will see that two wire loops are screwed side by side into the short end of the longer bar, and that the hand strings of the marionette are attached to these loops.

In attaching the hand strings, the worker should make a knot in the wire loop on the hand of the marionette; and, with a needle, pass the string underneath the sleeve, and through the ear loop, attaching the string for the left hand to the loop on the left-hand side of the bar, and for the right hand, to the loop on the right hand side of the bar; that is, if the conventional movements of the hands are desired. If the marionette is to be put through motions in which, depending upon the action of the play, its hands must swing wide and free of its body, the hand strings must not be passed through the sleeves and ear loops, but must be attached straight from the hand loops to the controlling bar.

The back string is attached to a wire loop that is screwed into the tip of the longer end of the lower bar. The head strings are attached to the upper, or shorter bar of the controlling bar, loops having been screwed into the tips of both ends. The string from the left ear loop is attached to the left hand end of the bar, and the string from the right ear loop is attached to the right hand end.

This completes the stringing of the controlling bar. Now, the worker should screw loops into the ends of the other bar, which controls the movements of the legs, and which is usually made two inches smaller than the longer or lower part of the controlling bar. Tie a knot into the strings that are attached to the loops at the upper parts of the lower legs, and pass the string of the left leg

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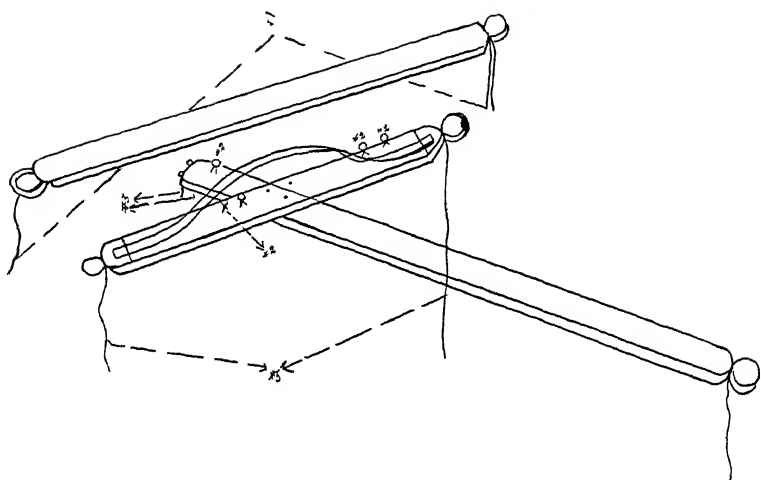


ILLUSTRATION SHOWING THE CONTROLLING BAR AND THE LEFT-HAND (LEG BAR) BAR WITH THE STRINGS ATTACHED TO THEM.

- No. 1. Leg strings.
- No. 2. Rubber vacuum suction buttons for key board.
- No. 3. Hand strings.
- No. 4. Back strings.
- No. 5. Head strings from ear loops.

through the left hand loop on the back of the marionette, and attach it to the left hand loop on the bar. Do the same with the string of the right leg, passing it through the right hand loop on the back, and attaching it to the right hand loop on the bar. These strings must be longer than the ones attached to the controlling bar, in order to permit absolute freedom of movement. Sometimes, if special freedom of the movement of the legs is required, depending upon the action of the character that the marionette is to portray, the leg strings are not drawn through the loops on its back, but attached straight from the legs to the bar

In operating these bars, the worker should remember one very important rule: THE SMALLER, OR LEG BAR SHOULD ALWAYS BE BEHIND THE CONTROLLING BAR AND HELD IN A POSITION AT RIGHT ANGLES TO IT. THE CONTROLLING BAR IS OPERATED IN SEMI-CIRCULAR MOVEMENTS FROM LEFT TO RIGHT AND VICE-VERSA, GENTLY LIFTING IT UP AND LETTING IT DOWN AGAIN. THE LEG BAR, on the other hand, IS OPERATED BY PULLING IT SLIGHTLY IN STRAIGHT, HORIZONTAL MOVEMENTS, the intention being to hold the legs still while the body is being lifted in a swaying motion by the controlling bar, and to set them down gently one after the other, when the controlling bar lets the body down again.

The operation of the movements of the bars requires a great deal of skill, which can be acquired by a few technical hand exercises, before the actual manipulation of the marionettes is undertaken. They will help the beginner to coordinate the rhythmic motion of his hands. The first exercise is to move the left hand (which is the one that usually operates the leg bar) slowly from top to bottom, counting one-two-three, while the right hand (operating the controlling bar) also moves down to the count of one-two-three, but in three short, quick, jerky movements, finishing at the bottom at the same time as the left hand. The second exercise is to move the left hand slowly from top to bottom just as before, while the right hand moves three times in a small semi-circular motion from the wrist, and swaying slightly from the elbow, each semi-circular motion being done to a shorter, or quicker, count of one-two-three, so that, when left and right hands are put together, the count will be "one-two-three, two-two-three, three-two-three."

In manipulating the bars, the worker should remember that the marionette must always touch the floor very gently, a feat which

is accomplished by the careful handling of the leg bar, while the controlling bar lifts the marionette without ever letting it stand very firmly.

In making the marionette walk, the movements of the strings controlling the right and left legs should be somewhat exaggerated, while the slow, advancing movement of the controlling bar carries the marionette in slow motion. This creates the illusion of walking, while in reality, the marionette is being carried by the controlling bar, its motion being exaggerated by the rhythmical movement of the feet.

To make the marionette bow, tip down the controlling bar, bringing the back of the controlling bar up, thus tightening the back strings, while loosening the front ones. This relaxes the body of the marionette and lets the head and upper part of the body move forward, producing the bowing effect. At the same time, the leg bar should be straightened out to permit the feet of the marionette to stand firmly; otherwise, the whole marionette will be down, and the correct bowing effect will not be achieved.

The directions mentioned above constitute the body movements of a marionette in general. The head and hands movements, however, as well as the motions of the chin that create the talking effects, are accomplished by the deft manipulation of the fingers on the strings. And this has been simplified by me in the following way:

CONSTRUCTION OF THE KEYS FOR THE STRINGS

Attach as many rubber vacuum suction buttons as are needed (the kind that are used as hooks in automobiles) to the controlling and leg bars, in such a way that the strings attached to them will be operated with ease by the fingers, the bars having been slipped onto the hands through the straps made for that purpose, and the fingers, therefore, having been freed for the necessary manipulations.

Then take a few waxed and shellacked strings, just a few inches long, tying a loop on one end and attaching a hook on the other. The loops are hung onto the rubber buttons, and the hooks attached to the strings of the marionette, whose movements are now controlled by the fingers touching the strings, as of a key-board. The touching of these strings will draw them taut, and give the marionette its necessary action.

For example, if the worker wants to lift the marionette's left hand, he can do so, by drawing the string attached to the button towards him with the finger nearest that string, and if, at the same time, the chin of the marionette should go down, the next finger can touch the string-controlling the chin and so forth and so on, playing on it as on a piano key-board.

The worker can operate these additional button strings with his fingers without the need of any extra swaying movements, keeping the bars stationary, and using the leg bar movements only when making the marionette walk. Instead of these rubber buttons, the worker can drill holes into the bars and insert permanent wooden pegs into them, to which he can attach the additional hooked strings. But in view of the fact that marionettes of different characters require different movements, the rubber suction buttons are preferable, inasmuch as they can be removed easily later on and placed onto another bar,—thus simplifying the construction of the key board, and, at the same time, saving the worker's time and money.

With a little practice, the worker soon achieves the necessary skill; and will, in time, discover for himself many other ways of handling his marionettes. The methods described herein should serve only as guides. For there are innumerable ways of handling and manipulating marionettes, and to describe or explain them all is almost impossible.

THE MAKING OF A HAND MARIONETTE.

A number of plays, especially those staged on the playground and recreation center fields, require construction of marionettes that are operated by hand, without the use of strings. In the hand marionette, the movements of the head, arms, and legs are controlled by the fingers, inserted into the necessary parts. Therefore, in making the hand marionette, the worker should mould the head and the neck together, and make the mask in the way explained previously in the paragraph on "Making the head of the marionette." Of course, the head can be moulded out of the papier-mache paste, then whitened with zinc white and painted with oil colors.

The neck must be made to taper so that it will fit into a paper tube. This tube is provided for the purpose of permitting the insertion of a finger with which to operate the movements of the head.

The arms and legs can also be moulded out of papier-mache paste, or made with the help of a plaster of Paris cast, or out of a piece of mailing tube. The hands and feet, can then be attached in the regular manner.

THE CONSTRUCTION OF THE SKELETON OF THE HAND MARIONETTE

The trunk of the hand marionette is made in the same way as that of the string marionette, except for the fact that when it is all finished, a square hole is cut into its back to permit the insertion of the hand which operates it.

The head and neck (made in one) are then attached to the trunk with wire or gummed tape, so as to permit its loose movement; and the arms are attached in the shoulder holes in the same manner. In attaching the head and arms to the trunk, the worker should see that the paper tubes, fitted into the upper part of the arms and the bottom part of the neck, extend inside of the trunk to permit the operation of their movement by the fingers.

If the legs are not to be operated, they are firmly attached to the bottom of the trunk; but if they are to be put into action, they are left in their skeleton form and attached to the trunk in the same manner as the arms, using paper tubes that will extend inside the trunk to fit the fingers.

When the skeleton is ready, the marionette is dressed. The sleeves are sewed firmly; but the freedom of the movement of the body parts should not be restricted.

An effort must be made to sew the dress in such a way that the hand that operates the marionette can be concealed by it, in order that it will not be noticed by the audience. Usually, a hand-operated marionette wears a cape over its costume, which also does the trick of concealing the hand that operates it.

OPERATING THE HAND MARIONETTE.

If the movements of the feet are not necessary, the hand marionette is operated by three fingers. If the marionette is held in the right hand, the thumb is inserted into the tube of its left arm, middle or fourth finger into the tube of its right arm, depending upon the ease with which the worker uses these fingers, and the forefinger into the tube of its neck. With a little practice in flexing his fingers, the worker will soon develop a sense for their proper coordination, and make his marionette do all kinds of tricks.

If the marionette is operated with the left hand, the thumb is inserted into the tube of its right arm, the middle or fourth finger into its left arm, and the forefinger into its neck. In case the movements of the legs are desired, and the marionette is held in the left hand, the thumb is inserted into its right arm, the small finger into its left arm, and the middle finger into its neck. The left foot is operated by the fourth finger, and the right foot by the index finger. This order is reversed if the marionette is operated by the right hand.

Hand marionettes are usually made in small sizes, so that their operation with the fingers is very simple. As a matter of fact, simplicity must be observed by the worker as the key note for the preparation of all types of marionettes.

BUILDING UP THE STAGE.

In building a stage, the worker should construct it with an eye to: (1) the number of the marionettes engaged in the play, (2) the size of the marionettes, (3) the maximum space required for the maximum number of marionettes engaged in a scene, and (4) the additional space required by the worker to comfortably operate them.

It is made out of twelve narrow strips of wood, heavy enough to stand the construction. Four strips are cut to the required width, four to the required length, and the remaining four to the necessary height. Two long strips for the length, and two shorter ones for the width are nailed together to form the rectangular foundation of the stage. Then, the four strips, cut for the height are nailed onto the corners, standing up perpendicularly, and in turn, are nailed to the rectangular roof, made of the four remaining strips. These will form the skeleton frame for the stage. The front of the stage, framing the curtain, is made of sheets of three-ply wood nailed to the front part of the skeleton frame. The opening for the stage view is cut away from the center portion of the three-ply panels before they are nailed to the skeleton, bearing in mind that enough wood must be left on the top and the sides, to conceal the operation of the marionettes. When completely nailed, the top and sides connecting with the skeleton frame can be finished off with regular moulding, and painted or decorated to suit the needs. Wooden rolls, (such as are used for the rollers of window shades) are used for the rollers of back-drop and scenery drops, and are attached to the side strips of the top of the skeleton

CHAPTER SIX

frame in the manner in which window shades are attached to the frames of a window. And the scenery, attached to these wooden rolls, can be pulled up or down as window shades are.

It is best to make the scenic drops out of silken fabrics, weighted at the bottom with lead weights, evenly distributed. Silk is very effective in the light, can be had in very attractive colors, can easily be painted on, and has the added value of being light in weight and rolling evenly.

To make a portable stage, the worker, instead of nailing these wooden bars together, should drill holes in places of nails, and connect the bars with screws. The front part of the stage can also be made in parts and held together by hinges.

The following illustration shows a portable stage, its scenery painted on silk by the method described in the chapter "Painting on textiles".

CONSTRUCTION OF A SCREEN AND A MOVING BRIDGE.

To show stationary marionettes as shadows or silhouettes, a screen, made of veiling or very transparent cheesecloth, is used; and the marionettes placed behind the screen, will show up effectively, when lights are properly played on them. Sometimes a play requires procession movement of stationary marionettes, while the main characters are playing their parts on the stage. In this case, a moving bridge is built and the stationary marionettes, fastened to it, will produce the effect of moving.

The moving bridge is built with two wooden rollers placed at either end of the stage from front to back in such a way that a strip of muslin, the ends of which have been sewn together to form a band, can be stretched taut over them and rolled in either direction horizontally. The rollers are supported by four stands, two on each side, so constructed that they will permit the free rolling of the muslin band. They are built at an elevation from the floor, with a view to providing ample space for the marionettes to pass through, also keeping in mind the necessary lighting effects. The rollers are operated by a hook or a handle fastened into one end of them. It is advisable to build a special floor for each pair of stands so that they can be firmly fixed and will be absolutely stationary while the rollers are being operated. Be sure that the marionettes are attached firmly to the muslin band, so that they will keep their position while moving.

MAKING DOLLS AND MARIONETTES



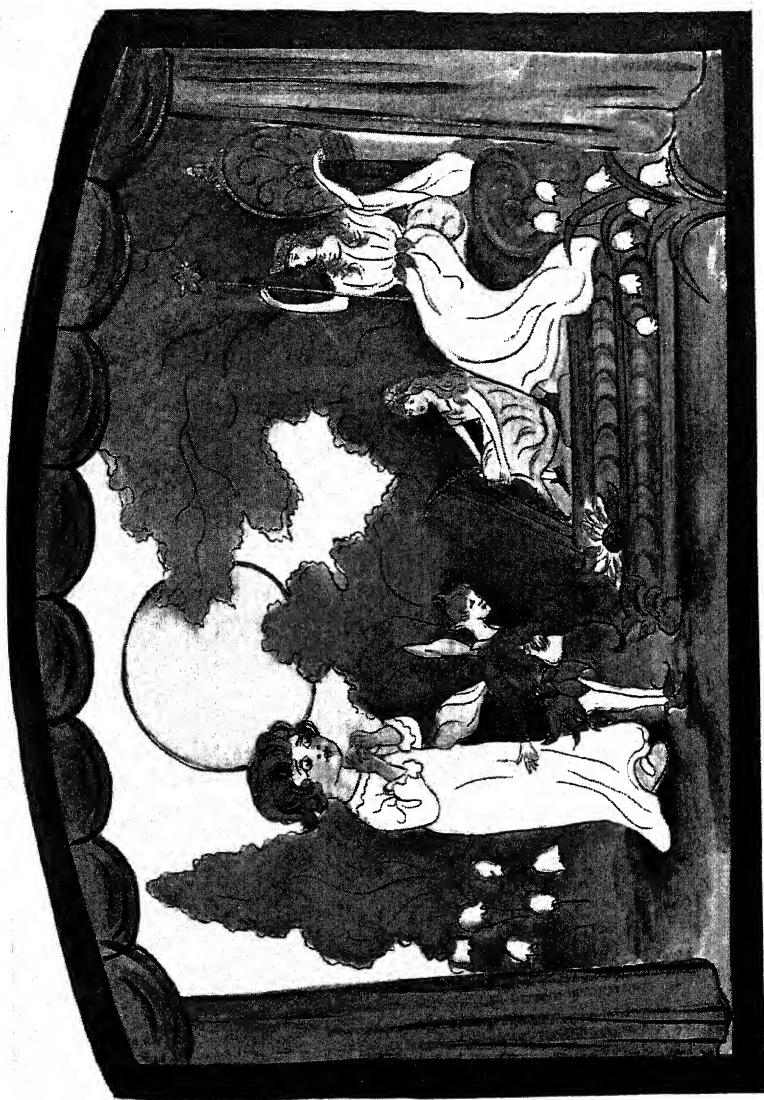
PHOTOGRAPH SHOWING A PORTABLE STAGE WITH TWO STATION-
ARY MARIONETTES AND TWO HAND MARIONETTES. SCENERY
PAINTED ON SILK.

THIS ILLUSTRATION SHOWS how stationary and hand Marionettes can be used. The scene opens with two stationary Marionettes: A young girl accepting the ardent proposal of a young man. But evidently she did not treat her little sister to a bar of candy, for the little one has brought her mother onto the scene, and they suddenly appear on the back of the stage. An invisible cut in the scenic drop has been made to make the operation of the hand Marionettes possible; and these two dolls, operated by two hands, appear on the stage and complete the action of this scene.

CHAPTER SIX



HAND MARIONETTE



PAINING OF A SCENE IN A MARIONETTE SHOW BASED ON A FAIRY-TALE.

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